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Torsion of the Bowel in Horses.*

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When I consented to read a short paper before this Society, I quite appreciated the fact that, amongst the members, there are some of the most able critics in the profession, and for that reason, and in view of many of them having had the advantage of extensive practical experience in pre-motor days, the choice of a subject was influenced by the desire to afford the junior members the benefit of the conclusions of my contemporaries, with regard to a pathological condition that has brought us more or less to a dead end. Torsion of the bowel appears to me to be capable of meeting those requirements. I hope for a new line of thought that will result in actual knowledge of the cause, and introduce treatment more successful than has up to the present been achieved.

Torsion of the equine intestine has always been of vital importance and interest to the veterinarian, and, probably owing to its limitations, the literature with regard to it appears to me to be meagre and unsatisfactory in comparison to its importance to us and to owners of large and valuable studs, especially in the days when there was little or no motor transport. We who have had to contend with large equine practices know only too well that progress in this respect has been very much retarded by the attitude of the horse-owners themselves, by their relying too much on the knowledge which they erroneously believed they possessed, combined with the use of their own or quack remedies; by their reluctance to call in professional assistance until all else had failed, and by withholding consent to what may be termed heroic measures, which the experienced veterinarian knew to be the only hope of saving the life of the animal. So that, if we have not made the progress that others less enlightened may think we should have done, we are not solely to blame.

On an occasion of this kind it is out of the question to deal completely with such a controversial subject, or to treat fully with the various displacements, and it appears to me that our object may be achieved by a general survey and by leaving the development to the generosity of your discussion.

Flexion, torsion, twist, etc., of the intestine may be described as that condition in which one or more portions of the intestinal canal is displaced in such a manner that there is partial or total rotation of the bowel along the longitudinal axis (except perhaps in the case of the large colon), or of the coiling of loops of intestine so as to cause partial or total obliteration of the lumen, strangulation of the circulation and interference with the nerve supply.

Causes.

The *pre-disposing causes* are, briefly:—any dietetic irregularity or pathological condition of the alimentary tract, lack of water, strenuous labour, overloading and insecure footing.

The *actual cause* of twist of the bowel is a very debatable point, nor can it be assumed that there is only one cause or set of causes to account for the conditions met with on *post-mortem* examination. I venture to submit, however, and my experience leads me to believe, that the greatest cause of twist of the bowel is *sudden* strenuous effort in which the utmost tension of the diaphragm and the contraction of the abdominal muscles, combined with the quick change in the posture of the body, is reflected onto the intestinal tract, causing displacement of that portion of the bowel towards which the greater pressure is directed. It is quite conceivable, too, that displacement may take place due to the sudden cessation of the pressure, causing a loop of bowel to overbalance, as it were, especially if it is over-distended. I feel sure that you who have had to deal with anything up to a dozen cases of colic after five or six o'clock at night, in pre-motor days, will agree with me that close interrogation of the drivers of those cases complicated by twist of the bowel, elicited the information that at some period of the day the horse was subjected to severe sudden effort or strain, either in moving a load along an incline and slipping in the effort, or of repeated attempts to maintain its balance while shifting a heavy load. I submit that this is the explanation for so many cases of twist of the colon occurring in draught horses. The enormous power of the contracted diaphragm and abdominal muscles directed on to the abdominal viscera during sudden exertion, *plus* the alteration in the posture of the body, appears to me to be quite sufficient to cause displacement of a loop under normal conditions, and when there is either flatulence, excessive quantity of ingesta or any cause of weakness to resist pressure and maintain the normal position of the organ, one can without difficulty understand displacement of the intestine taking place quite easily in those circumstances. It is my opinion that in the majority of cases only flexion of the bowel takes place at this stage, and it is not until after the peristaltic action is stimulated by the ingestion of food that the inco-ordinate muscular contraction of the longitudinal bands comes into play and carries the flexion on to partial or complete rotation of the affected part of the intestine. This may explain why so many cases occur after returning to the stable.

Strenuous labour is not, in my view, a common cause of twist, except perhaps in light horses that are subjected to heavy continuous strain and occasional super-efforts, and in that case it is generally the small intestine that is involved. For instance, in the old days of coaching parties to the Derby, when the weather was bad and the going heavy, especially from the Downs, it was a regular occurrence to be called to cases of colic which proved to be complicated by twist of the small intestine.

Lack of water also appears to have considerable influence in causing twist of the small intestine, and on *post-mortem* one finds the bowel abnormally dry. The only explanation

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I can offer for this cause is that the lack of lubrication, if one may so express it, causes irritation of the mucous surfaces, which tend to cling to each other, or to the ingesta, and lack of freedom of movement induces rotation, which, once started, rapidly increases until the bowel is completely strangulated. That lack of water during work is a very frequent cause of colic I am fully convinced, and in support of this I would cite the results obtained by following the instructions to water horses at every opportunity regardless of the condition of the horse, so long as the water was aired, and not brought straight from the tap or well. In the case of a Tramway Company whose horses steamed with perspiration as they came from the trams, the percentage of cases of colic was extremely high, and the cases of twist of the small intestine out of all normal proportion, during the time the horses were not allowed more than a little water, or meal and water, until they had cooled off. From the time that order was rescinded, and the horses went straight from the trams to the large water troughs to drink until they were satisfied, the cases of colic fell to a very low percentage, and twists of the bowel were of relatively rare occurrence. The same results have been obtained in many studs that were under my supervision. By adhering to this rule during the days when I did a lot of hard riding and driving, I believe my memory serves me correctly when I state that in over 20 years I had only one horse with an attack of colic.

Continuance of work, or rapid movement during an attack of abdominal pain, has not, I submit, been sufficiently emphasised as a frequent cause of twist of the intestine. Invariably the history of the case when there is no knowledge of the sudden strain, shows that the carman " kept him going " after the onset of pain, in order to get back to the stable or to the point of unloading. It is my belief that this extra exertion and spasmodic pressure directed against the bowel during the period of spasms is the cause, the direct cause, of the displacement. In support of this is the experience gained by adopting preventive measures in large studs. Strict instructions were given to all drivers that on the first sign of uneasiness the horse should be unharnessed, kept as quiet as possible and given the colic draught that was part of his equipment. If the pain had not abated within half an hour a second draught was to be given, and he was to communicate with my office at once. On no account was he to attempt to bring the horse back to the stable, or to continue with his load until all signs of pain had gone and the horse had taken a drink of water. Prior to that order, in a stud of about 700 horses, the mortality from twist was in the neighbourhood of 5% (five per cent.): subsequent to it the death rate from that cause was less than ¼% (quarter per cent.), so that there is at least some foundation for the theory.

Violent peristalsis is also said to be a cause of torsion of the bowel. I take exception to this for the reason that if it were true, there would be a lower percentage of cases of spasmodic colic, and a higher one of twist of the bowel. Furthermore, the administration of powerful intestinal stimulants, such as barium chloride, arecoline, etc., would be too dangerous in practice. During the past 40 years, like other members, I must have administered hundreds of doses of such drugs either medicinally or experimentally, and I have yet to see their action complicated by twist.

Inco-ordinate action of the longitudinal muscular bands is an accepted theory of the cause of twist of the colon. That it may be the actual cause in cases where the weight of the ingesta during, for instance, continued spasm of the bowel, has led to paralysis or fatigue of the bands bearing the weight, while the others are still contracting vigorously, I can readily believe; otherwise, more accurate knowledge must be submitted before it appears to me to be acceptable.

Displacement of a portion of bowel due to the swing of a segment filled with ingesta over one inflated with gas, or the converse, during the acts of lying down, getting up or rolling is said to be a very common cause of twist of the colon. Given normal health of the animal, I cannot accept this theory at all; in the event of it occurring during an attack of colic I agree that it is possible. If it were such a common cause of twist, surely one must expect a very high percentage of cases amongst animals that have freedom, during which they roll, and get up and go down time after time, the moment they are released from work. My own observation tends to prove that twist is of rare occurrence from this cause. A fairly large experience of range work, where one's cow ponies do a gruelling day's work during the round up and are turned loose the moment they get back to camp, has not to my personal knowledge produced one case of twist of the bowel, so that those who do not agree with this view will forgive me for basing my exception to the theory on the results of practical experience.

Flatulent colic is also said to be a cause of twist. That it may be so at odd times I agree, but I cannot accept it as a frequent cause in view of the large percentage of recoveries from tympanites. Flatulence is always associated with twist of the bowel, and it is more than likely that the tympanitic condition in fatal cases is caused by the twist, and not that it is the cause of it.

Having dealt with the more frequent causes of twist, it is not my intention to take up the time of the meeting by referring to others which I am led to believe are more or less fantastic. I wish to say, however, that the custom of making *post-mortems* on all cases will reveal that twist of the small intestines will be found to be of more common occurrence than is generally supposed to be the case.

Symptoms of twist of the small intestine are always more quickly apparent than those of the colon, and are most acute from the onset. In the few instances when I have been fortunate enough to be present when they commenced I noticed that the animal's attention seemed to be suddenly arrested, and that it threw up its head as though it were making a mental enquiry as to the cause of a strange sound or sensation.

Restlessness, perspiration and symptoms of acute abdominal pain were soon manifested; constant looking at the flank and lying down gently, always with the nose to the floor, and apparently afraid to let the epigastric region meet with any force during the act. The pulse is full, but soon becomes small and thready; the temperature quickly rises two or three degrees and the respirations become short and thoracic, not unlike those of acute pleurisy. Fæces and flatus are passed until the large bowel may be almost empty. The mouth is hot, dry and fœtid, and the conjunctiva becomes injected and at times icteric. The body is bathed in perspiration, the expression one of acute agony and the poor brute gets up and down time after time, always more or less gently, sometimes

standing on the hind feet while the knees support the fore part of the body. There is no cessation of the pain, but soon the tendency to lie down passes off and the patient wanders round the box, sighing and at times evincing violent tenesmus. There is little or no intestinal tympany, but soon gastric tympany is apparent and eructation of gas may take place at intervals. Rectal examination is resented by the muscular fibres of the rectum, and patience must be exercised before one is able to ascertain that the large colon is in more or less a normal position. Sighing and cold intermittent perspiration become more marked, and in time one may be led to believe that there is some improvement in the condition, especially when the perspiration begins to dry off, but it is only for a time, and ultimately the signs of delirium are evident, tremors of the extremities ensue, the gait becomes staggering and the sufferer goes down for the last time, expiring with terrible strains and groans that excite one's pity to the utmost.

Diagnosis of twist of the small intestine is not always easy, and it is apt to be mistaken for complete twist of the colon. The suddenness of the attack, the acute symptoms from the onset, the frequent, hard, quick pulse soon becoming thready, the highly-injected conjunctiva, rapid thoracic respirations, the presence of gastric tympany and relative absence of tympany of the colon, all point to torsion of the small intestine, and the never-to-be-forgotten expression of agony and helplessness on the face materially assists one. Furthermore, in the earlier stages of twist of the small intestine, when the animal goes down, there is the ever-present desire to lie on the side, usually the right side, raise the head and neck, looking at and sometimes resting the nose in, the flank for some time. At times the twisted portion of the bowel may be felt, and distinguished from acute obstruction of the organ by the corrugations of the twist, and the absence of the smooth covering that one finds in the case of obstruction. Furthermore, the symptoms manifested in obstruction are not so acute as those of twist. Experience enables many veterinarians to diagnose these cases at once without rectal examination, but they are unable to explain in a satisfactory manner on paper why they know they have to deal with a case of twist of the small intestine.

Treatment so far has been futile, but I look to the rising generation of veterinarians, with the co-operation of the horse-owners, to overcome the difficulties. At present all we can do is to advise the destruction of the patient as soon as one is reasonably sure of the diagnosis, and if the advice is not accepted, I do not see what else can be done except to administer large doses of sedatives and powerful narcotics to relieve the pain until death takes place. That it is possible successfully to adopt surgical treatment with reasonable hope of recovery, if undertaken in the early stages, I have not the least doubt, but the greatest obstacle is the owner, who will not take the chance, even when one offers to operate free of charge. Before leaving the subject of twist of the small intestine, I should like to mention a case of a Norfolk cob that I met with many years ago. *Post-mortem* examination revealed a tight, complicated torsion that required a great deal of time and patience to reduce. It was then discovered that there was a complete knot in the bowel. As this could not possibly have taken place *ex utero*, it must have existed during fœtal life and throughout the six or seven years of the cob's existence, apparently causing no inconvenience until an attack of colic presumably caused the loop to tighten into a knot and further torsion ensued. It was the intention of the late A. E. Dalby, M.R.C.V.S., in whose practice it occurred, to report the case and send the specimen to the museum. I do not know if he did so.

Torsion of the Large Colon.

Symptoms of torsion of the large colon vary with the degree of the displacement, and it is always as well to be suspicious of displacement in those cases of abdominal pain that commence with only slight uneasiness, and to make a rectal examination without delay. Not infrequently the only suspicious symptoms of flexion of the pelvic flexure are a fulness and slight acceleration of the pulse; alternate shifting of the weight from one hind leg to the other, and general dulness of appearance. This may even pass off for anything up to a couple of hours, but when the symptoms are again manifested it is seldom that there is any cessation of them. Short periods of rest occur, but to the trained observer the pain is still there, and the manifestations of it become more and more acute; the pulse is full and accelerated, the respirations increased and soon there is a rise of one or two degrees of temperature. Soft fæces and flatus in small quantities are frequently passed, but they are seldom, if ever, coated with mucus, as they are in impaction of the colon. Perspiration breaks out, and if there is complete rotation of the bowel the body soon is bathed with sweat. The animal goes down, struggles for a few moments, gets up, walks around the box in a crouched posture, gives evidence of the desire to lie down, but does not complete the movement very often; when it does so, it goes down on the side, stretches, gets on the back and remains in that attitude for some time, again coming back to rest on the sternum and abdomen. At this stage it is usual for the horse to sit up like a dog until there is no more relief at the time to be got from that position, and the recumbent one is resumed. So the case proceeds, but it will be observed that the patient never throws itself down with the abandon, or goes down in a manner regardless of force that one sees in cases of acute spasmodic colic. The haggard expression of the face is enhanced, tympanites increases, but there is no flatus, or at best there is an escape of only a very small quantity of gas as enemata are expelled. Straining and sighing take place as the animal perambulates the box, and as the end is approaching it will seek to bore its head in a corner or against an attendant. At this stage there may be a diminution in the quantity of perspiration and it only remains along the neck, flank and behind the ears. When it breaks out again it is cold, tremors of the limbs set in, the animal goes round and round the box, occasionally lying down with less care than in the previous stages, rises and staggers about until the final fall and death takes place. The condition of the pulse passes from that of fulness, and becomes weak, easily compressible and towards the end can scarcely be felt. The conjunctiva at first shows but little change, but becomes more and more injected, sometimes of a dirty reddish tinge, and as the strangulation of the bowel increases and necrosis takes place, the mucous membranes are apt to become pallid, and in some cases lead one to suppose that some important vessel has ruptured.

This condition, of course, is due to the large quantity of blood hemmed in the intestine. Tympanites is invariably present and the distension of the abdomen aids in differentiating the condition from twist of the small intestine.

Diagnosis of twist of the large colon is often assisted by a knowledge of the history of the day's work prior to the onset of symptoms of pain. The full pulse, soon becoming weaker, the delayed marked injection of the conjunctiva, the spasmodic respirations and signs are all significant of the condition, and help one to suspect the colon rather than the small intestine. The crouching movement as the patient walks about the box, the care with which it lies down, and the sitting posture are all significant of the colic twist, but the safest indications are the passing of small quantities of soft fæces, the absence of flatus, and the resistance offered to enemata and examination of the rectum. The absence of gastric tympany and the presence of intestinal tympany are also valuable aids to diagnosis. Before attempting to make an examination *per rectum*, it should be washed out, and the hand and arm well soaped or oiled. It will be observed that the muscular coats of the bowel exert powerful contraction on the hand and arm the moment they are introduced; tenesmus will follow, accompanied by groans of pain and strong efforts will be made to resist the examination. Patience and steady pressure are required to succeed in one's effort, and not infrequently the arm will be numbed by the pressure it has to withstand from the bowel. It will be discovered that the pelvic flexure of the colon is not in its normal position, and that it is distended with gas. Care must be taken not to mistake it for the loop of the small intestine that is often found at the rim of the pelvis; the latter may be recognised by its size and lack of balloon shape. The next thing to do is to find the bands of the colon, which, I may say, is not so easy as some people would like us to believe, and follow them in order to discover the direction they have taken. Diagnosis is fairly certain when one feels the band of the rectal mesentery passing downwards and forwards to the left like a tight cord, and pressure upon it always causes indications of pain. In case of twist of the pelvic flexure, one does not meet the distended bowel as the hand enters the rectum, but it may be discovered either to the right or the left and often a portion is well up towards the spinal column. In case of torsion of the suprasternal and the diaphragmatic flexures, the intestinal tract is shortened and one may believe that the bowel has slipped forward, and therefore, the pelvic flexure, as one can readily understand, cannot, even during the violent tenesmus, come to the pelvic cavity. The position of the glands and vessels, together with the direction taken by the longitudinal bands, either to the right or to the left, will indicate the direction of the twist. When I have had the luck accurately to diagnose the case by the indications of the bands, I have always felt rather pleased with myself, for I have yet to meet a confrère who admits that it is as simple as it may sound. In complete torsion of the colon the symptoms are always most acute and persistent. The highly-congested conjunctiva, the profuse constant perspiration, tremors of the muscles and limbs and a pulse that clearly indicates the struggle of the heart to drive the circulation through its normal course clearly indicate the condition. The circumambulations, it will be observed, are always in one direction, and, try as one will, the patient, when free, cannot be induced to go in the opposite direction. I wonder just what is the significance of this.

Treatment is at present hopeless except in the cases of partial twist, which we can definitely diagnose and have the power to reduce by manipulations *per rectum*. On quite a number of occasions I have been fortunate enough to succeed in this, but, at that, the proportion of successes is very small. Nevertheless, one should continue to try to the last, for on more than one occasion when I have practically given up hope and have been more or less exhausted by the muscular effort it entailed, at the last moment, when I have, as it were, put forth a last effort regardless of consequences, success has rewarded the effort. When one fails to get results while the horse is standing, wait until he goes down, and at once attempt reduction of the displacement while he is stretched out. Many cases have been reduced while the patient is recumbent. To follow the custom of not allowing the horse to lie down, or to keep it on the move, is, I submit, not only contra-indicated, but it is inhuman, and disposes of any lucky chance of reducing the displacement by the unobstructed and instinctive movements of the patient.

It may be advanced that to control the patient in this way prevents twist, or the increasing of it, but to me the argument is not good enough to recommend itself. It is my practice to administer a good dose of chloral prior to attempting rectal examination and reduction, and I usually also give one or two quarts of linseed oil, for the reason that it is a laxative that insinuates its way through the alimentary tract, and by carrying with it a certain amount of ingesta it may help to elevate the folded bowel and assist in returning it to its normal position, especially during the manipulations. The moment the bowel is unlooped there is a rush of gas and almost at once the patient manifests relief, and rapid recovery ensues. All efforts having failed and the twist appearing to be irreducible, the only chance is to resort to powerful stimulative treatment, *e.g.*, arecoline, and as the peristaltic action of the bowel is at its height make another attempt at reduction *per rectum*. Those who have tried it will bear me out in regarding this as a strenuous operation, but having been successful with it on several occasions, it is always worth the attempt. There is also the point to be borne in mind that if the twist is a bad one, the increased action of the muscular coats of the intestine will tighten the strangulation and lead to a quicker end, when the owner refuses to consent to the patient being put out of its misery. Until all hope is abandoned, it is as well to stimulate the heart's action in the hope of delaying necrosis of the part. The animal should be kept as warm and comfortable as possible, and although it will not drink, it will sometimes splash about in a bucket of water and imbibe a little, and there is a chance that this action, carrying with it some of the ingesta, will elevate the overlying portion of bowel and assist in helping one to untwist it. I also give large doses of sodii bicarb. with a similar object. When manipulating the bowel the flat of the hand should be used and steady pressure on the inflated bowel should be directed downwards, forwards and to the right or left, according to the indications of the direction of the twist. To expect immediate results is too much, and only constant pressure and patience to overcome the resistance of the

muscular contractions is likely to be rewarded. At times one feels that one cannot hold on another moment owing to fatigue, but it is often at that point success will reward one. It is sometimes possible to grasp the muscular band and lift the bowel into its normal position. All attempts having failed, there is only one thing to do, so far as I am aware, and that is to administer large doses of sedatives or narcotics to relieve the pain, turn the animal loose and hope for a quick termination. I have confidence in the rising generation evolving a practical method of evacuating the contents of the bowel, perhaps by means of a double action pump, before opening the abdominal cavity for surgical measures. I believe this can be successfully carried out if the diagnosis is made early enough and the operation undertaken at once. It only requires a couple of successes to swing the pendulum in the mind of the owner towards unqualified support and faith in us. With regard to the tympanites that is always associated with twist of the colon, I am not in favour of parencentesis in the early stages, for it is quite possible that the inflation of the bowel may be of considerable assistance in manipulative surgery. When it is found to be unfavourable then the gas should be removed, and repeated tapping is indicated if only to relieve pain.

There is one very disturbing sequel to successful reduction of twist of the colon, and that is septic pneumonia. One is apt to pat oneself on the back at having brought a case of twist to a favourable issue, when one sees the patient warm, comfortable, free from pain and enjoying a nice mash, but the pleasure is very apt to be turned to discomfiture within a week by death taking place from pneumonia, and it is advisable to take every precaution against this.

It is not my intention to take up the time of the meeting by describing the *post-mortem* symptoms, but I strongly advise all juniors to make *post-mortems* if at all possible, and carefully study them in contrast to the *ante-mortem* conditions. I also would pass a word of advice not to treat these cases casually, but to make up one's mind that if one is going to do any good, one must work hard, and never give up until the end comes. Quite recently I was called to a case treated by a recent graduate. At first sight of the patient I knew he had not diagnosed his case, and when he had done no more than take the pulse and temperature and had given instructions to the effect that he would call on the following day, I concluded that it was time to offer a little advice. It was not accepted graciously, nor my diagnosis accepted, but I promised to prove it to him by the following noon, and from the indications on *post-mortem* I feel sure that had he set about his case in a more workmanlike manner and not left it simply to the administration of the medicine he might have saved the horse and enhanced his reputation. I cite this instance to emphasize the necessity to avoid being casual.

A general survey leads one to believe that two important factors are responsible for our lack of knowledge in this, as well as other subjects. First, slackness, in so many being satisfied that they have proved to the client the certainty of the diagnosis; second, the lack of mental generosity in the profession, and absence of faith, and in the old days, the existence of antagonism between individuals. More generosity, more regard for the advancement of the profession and a keener appreciation of the animal's suffering would, I submit, have advanced our knowledge, particularly of diseases of the alimentary tract, to a very great extent.

Discussion.

Mr. W. Perryman complying with the request of the President (Captain G. Dunlop Martin) that he should open the discussion, said that he had hoped that this task would have been delegated to someone else. He must say that they were all greatly indebted to Major Wall for his exhaustive paper, which showed that he had had a great deal of experience and had handled successfully a great many difficult cases.

He supposed that colic was one of the diseases about which they all knew "more than the other man" (laughter), but it was also a disease in which if one made a *post-mortem* on its victims, one would find how often one had been misled. In colic cases it was almost impossible to say what one really had to deal with at the commencement and one had therefore to treat these cases as those of simple colic, to begin with: as the case progressed one felt that one might have torsion or twist.

As to the cause, he was not in agreement with Major Wall, who, he thought, attached most importance to sudden strain and effort. He used to think that himself, but in later years he came to the conclusion that sudden strain was not the main feature: no doubt it had some part, especially in twist of the larger bowel—but he thought the main cause of twist of the bowel was some peristaltic action, though not quite as Major Wall had explained it. He believed it was a reversed peristalsis due to some nerve irritation of the bowel itself. He made that statement because, on *post-mortem*, especially in the case of the smaller bowel, it would be impossible for the bowel to have twisted in the way one often saw with just one sudden, violent effort. Get the bowel outside and try and untwist it—one would find that the bowel had gone into a big loop, or more often a series of loops. In the worst instance of this he ever saw, the knackerman held one portion of bowel and threw the other portion over it thirteen times in unravelling it. The bowel for some reason began to creep round and it provided its own stimulus in twisting itself.

He thought that the cause, in most cases, was irritation of the mucous membrane, due to dietetic disturbance. One saw runs of cases in big stables, and if one went carefully into the feeding one found the food defective in quality, or in other cases the feeding might be excessively good and the animal ate ravenously. If one enquired into the history of cases of twist one would notice—as he had often done—that the animal's record had been that he was a bit queer a week or two ago, when he had had a slight attack of colic—probably the animal had been suffering from some form of indigestion for several days: he had another bad attack, and then the bowel got twisted.

Major Wall had not mentioned twist due to the presence of worms, especially the big worm, *Ascaris megalocephala*. In making a *post-mortem* he had seen a portion of bowel six feet long filled with hundreds of these big worms. Such a large number must cause intense irritation, and if reflex peristalsis accumulated all those worms in one spot, the degree of irritation produced might well result in a twist.

As to the big bowel, he did think that occasionally violent effort caused trouble. One would find that the bowel was thrown over on its side and, as time went on, the bowel became paralysed. In cases of twist of the big bowel, when one made a *post-mortem* one seldom found it twisted more than once or twice. Major Wall did make mention of the animal's movements, and he (Mr. Perryman) thought that when there was any chance of the animal getting better by letting him get up and down, it was in the case of twist of the big bowel. One often met with a case of a bad attack of colic, and got disheartened, when all at once the animal would give a big roll, and from that time on it improved.

The essayist strongly emphasised the value of exploration and the use of enemata in twist. In colic cases the speaker thought that these procedures were almost diagnostic. If the animal resisted the enema strongly, and it was violently and quickly expelled, one could take it that it would die almost certainly, and time would prove that it had got a twist.

In the case of the small bowel he certainly thought, with Major Wall, that the pain was far more acute: the animal was often mad for the first few hours. After a time it got quiet, and perhaps one might be able to proceed with the examination.

Major Wall did mention that in the case of the small bowel one would often find that, as one performed rectal examination, the loop of bowel was wedged up against the rectum: that, he thought, was very diagnostic of twist.

As to tympany, when the animal began to swell after a few hours one could begin to think about twist.

The essayist mentioned surgical treatment. He did not know whether Major Wall was optimistic enough to think that there was a future for abdominal surgery in the horse—he did not think so himself. When one saw the mass of material that came out of a horse when one opened it, it made one feel that abdominal surgery in this animal would be a formidable business. Major Wall also mentioned puncture. He (Mr. Perryman) had practised it, but without much success. When an animal was ballooned, one got a certain amount of relief by puncture, but these were generally cases of twisted bowel.

Major Wall mentioned at the finish that so often cases of colic got better and, after a week or so, succumbed to gangrenous pneumonia. That was not always due to septic absorption from the bowel; it was, in the speaker's opinion, more often caused by drenching under the difficult and sometimes almost impossible conditions prevailing, a good deal of the drench going into the lungs; that, and not colic, was, he thought, often the cause of the gangrene of the lung.

He desired, in conclusion, to express his hearty thanks to Major Wall for his interesting and instructive essay. (Applause.)

Mr. J. W. McIntosh thanked Major Wall for his very excellent and instructive paper: he had covered the ground so fully and in such detail that he had left little room for discussion.

Those of them who had experience of horse practice were familiar with that all too common complaint.

He believed in an aggregate of causes, but perhaps no single factor exercised so much influence in its production as did irregularity in feeding, and the physiological conditions which so frequently prevailed at the times of feeding. Under working conditions it was not possible to observe those laws and regulations which were so essential to proper digestion. Animals had to be fed as opportunities presented themselves, and very often at times when conditions for digestion were at their worst.

Matters, too, were aggavated when the rations were of indifferent quality, and as so often happened, of a badly balanced character. No doubt, too, lack of suitable and convenient watering places made it difficult, if not impossible for drivers to attend to that want at proper intervals. Severe effort, as the lifting of heavy loads on slippery streets, when the physiological activities were disturbed by the condition already referred to, might act as a contributory cause.

He had some considerable experience in dealing with that complaint, but so far as his efforts were concerned he had very little success.

He doubted very much whether it was possible to reduce a twist whether it were of the small or large intestine. A displaced colon might, by manipulation, be restored to its normal position, but even here the task was no easy one, although probably possible.

Major Wall appeared to have had considerably more than the average success in dealing with his cases. He was afraid that most of them would have to admit failure in reducing a twist. Needless to say, medicinal treatment was of no value beyond alleviating, to some extent, the excruciating pain associated with it. He never hesitated to relieve flatulence by puncture either through the flank or *per rectum* as the case might be.

It might be possible for the younger generation to deal successfully with the condition by surgical methods, but he personally was not inclined to take the initiative.

If only they could eliminate those irregularities in feeding which at the moment appeared inevitable and pay more attention to sound and well balanced rations, he felt perfectly sure that the incidence of colic and twist would very largely disappear. At present twist of the bowel in our transport horses was very frequent and in his opinion claimed 100 per cent. mortality.

He did not believe that a complete twist was ever reduced by manipulation.

Again he thanked Major Wall for introducing that subject and for the opportunity he had given them of expressing their views and experiences in dealing with it.

Mr. H. D. Jones expressed his thanks to Major Wall for his paper and proceeded to say that the previous evening he had been reading Caulton Reeks on colic and, although that author had a whole book on the subject of colic, yet he said little about twist but put most colic down to impaction.

He was sorry, but he did not altogether agree with the essayist about effort, or strain, or speed being the sole cause of twist; neither did he agree with Mr. Perryman that the feeding was the sole cause: on the contrary, he was in agreement with Mr. McIntosh that the cause was a combination of the two. Anyone who had a stud of horses knew that it was a widely-held opinion that a horse would get colic that had not been at work at all or subjected to effort or strain of any kind. It was also well known that foals sometimes died of twist; therefore he did not see how the cause of twist could be put down as either strain or food altogether.

Major Wall had also mentioned about watering: he (Mr. Jones) did not entirely agree with him about that either. The essayist practically said that if horses were watered in a certain way, or withheld from it, one could cause them to have twist. He did not agree. In his own stable they let the horses have as much to drink as they liked and, like Mr. McIntosh, they had had a very big reduction in the number of cases of colic. For last year, his colic losses were ·59 per cent., and he put that down simply as being due to less work. There was no doubt that since the eight-hour day came in horses were worked far less, and did far less mileage, and although they might take some credit to themselves, he thought the eight-hour day and less mileage had done most towards that reduction. (Hear, hear.)

Major Wall had made no reference to aneurism: he thought the essayist would have mentioned that in dealing with twist of the small intestine. If one made careful *post-mortems*, one would nearly always find, in those cases of twist, aneurism of the anterior mesenteric artery. Many people said that that was the cause of twisted bowel, and he should like to know what Major Wall thought about it.

The essayist also mentioned the occurrence of pneumonia after colic. His (Mr. Jones') opinion about that was that it was usually due to drenching, especially in Major Wall's cases, as it appeared that he gave two quarts of oil. He thought that the less drink given, and the sooner it was down, the better.

He was hoping that Major Wall would tell them something about the alleviation of pain, or drugs, and what he considered the best drug to alleviate the pain of twist. Personally, he had had no good results from morphia, and he would like to have the essayist's opinion in regard to that.

Captain J. F. Macdonald (Hon. Secretary) observed that it had been a grievance in that Society that no one would come forward and read papers concerning the ailments of the horse, and to remove the grievance he approached Major Wall to give a paper on that clinical subject, but he did not think that the attendance that evening (23 members) was very encouraging.

With reference to the cause of twist, he must say that he agreed with Mr. Jones that the eight-hour day had

done more to stop twisted bowel than anything else, and he thought that the chief cause of twist was exhaustion, due to a tired horse being unable to digest a full feed. In the old days before the War twists were five times as frequent as they were to-day, if not more, and that was simply due to horses being worked too long hours: cases of colic nearly always occurred in the evening, when the tired horse was unable to digest his food.

Major Wall also said that twist of the small bowel caused death more quickly than twist of the large bowel; he (Captain Macdonald) thought that it depended chiefly on whether or not one had got a complete torsion of the large bowel: if one had, death occurred much more quickly than in complete torsion of the small bowel. The shortest time in which he ever remembered a case of twist of the colon to have a fatal termination was four hours, when there was complete strangulation. He thought that the longer course of twist in incomplete torsion of the colon was due to the fact that strangulation was incomplete and the circulation functioned to some extent.

Mr. Perryman was rather against puncturing the bowel; he was surprised to hear that, because one could not be sure that the twist was there, and if one had got acute tympany, puncture undoubtedly gave relief, and he would very much rather puncture a horse that had a twist and that eventually died than neglect to puncture a horse suffering from flatulent colic and which died from suffocation.

With regard to the giving of drugs in colic, a very common condition in colic was impaction of the stomach. If one made *post-mortems* on cases of twist, one would find that in many cases the stomach was impacted with a large quantity of very dry food; he had seen stomachs weighing half a hundredweight—not that the entire half-hundredweight was food, as there was a good deal of moisture with it—but that was the weight of the stomach and contents in many cases. In these cases he doubted if drugs had any effect, because it was simply absorbed by the mass of food in the stomach—there was no absorption by the system whatsoever; that was particularly noticeable in the case of balls, which were often found lying in the stomach undissolved. It seemed to him, however, that the indication was to give hypodermically so far as possible in those cases.

He would just like to thank Major Wall for his care in preparing his paper and for the many thoughts to which it had given rise; that, he thought, was the main point in any paper.

Mr. F. W. Willett said that the point in the paper with regard to the causation of colic which struck him most was the reference to exhaustion. He thought the eight-hours day had done more to cause a cessation of these cases of twist than anything else; horses did not get so exhausted.

He lived sixteen miles from Hyde Park Corner, and in the old days the pantechnicon horses would get so far and then come into their place with colic. These cases happened quite often and they kept very large horse boxes for them, allowing the horses to get up and down as they wished; frequently after a good roll they would get up, shake themselves and improve rapidly. There was no doubt that many of those cases were partial twists or displacements, and they were often walked and exercised to death. He thought, with Major Wall, that the thing to do was to get them out of harness and into a loose box, and give them their liberty as soon as possible.

He should like to thank Major Wall for bringing up that subject; it reminded one of old times. (Hear, hear.)

Mr. R. Eaglesham thanked Major Wall for his very exhaustive paper, and proceeded to say that, being the veterinary surgeon to a large stud of horses, he had come in contact with many cases of colic and twists of the bowels. Most of the fatal cases he had in London were from twist of the intestines. He agreed with most of the other speakers that twists were due to dietetic causes. Of late years they had paid greater attention to the selection and preparation of the foodstuffs and had introduced a well-balanced mixture, and the colic had been reduced to a minimum in consequence. He thought the condition was due very often to irritation from food; possibly the tired condition of the animal might lead to fermentation of the food and thus to colic and torsion of the bowels.

As far as success in the treatment of torsion was concerned, he had never been able to reduce a torsion, whether of the large or small intestine. He did not think that any operation was possible in the equine species; the bowels were too massive, and in most cases mortification had set in and death would ensue before any operation could be completed.

Major-General Sir John Moore said that he had been very interested in Major Wall's paper, and that he thought that its value would be revealed when it was published and they could study it at their leisure.

He quite agreed with the essayist that the diagnosis of intestinal disorders in the horse, particularly ruptured stomach, was very difficult. Before he joined the Army he was for four years and a half in practice as an assistant with Mr. Tedbar Hopkin of Manchester, and he was there brought in contact with a very large number of cases of colic and its sequelæ. Diagnosis certainly was extremely difficult, and he used to put down "death from ruptured stomach at 24 hours," "death from twisted intestine" (or volvulus as they called it, and as it was still called, in the Army) "at 36 hours."

He agreed with most speakers, that it had its origin in dietetic causes, and there was no doubt that exhaustion led to that condition: the fact that the horse was tired, and hard work and irregularity of diet no doubt was the cause of all that trouble.

The water in Manchester was extremely hard, and he had often wondered if that was contributory to intestinal disease. So hard was the water there that they could never make stout, as compared with Dublin, which had soft water and was noted for its stout. He thought, therefore, that the character of the water might have something to do with the causation of intestinal disorders. Undoubtedly, in twisted intestine there was an interference with peristalsis; very often he had found that there had been slight intussusception, and some of the twists with which he had met were absolutely impossible to unravel on *post-mortem* examination; he did not, therefore, see how it would be possible to reduce twist by any operation.

In regard to the diet, in Manchester, in his day, they used to feed considerably on maize, which he thought was very conducive to colic and intestinal disorders.

Concerning treatment, he thought that anodynes of any kind whatsoever were very useful to keep down the pain as much as possible and possibly even to get rid of the trouble. General Smith used to be a great believer in flushing the intestines; his practice was to give cases of colic in the army very large flushings of water *per rectum*, the water being used either cold or tepid.

He did not know that he could offer anything more to the discussion; he thought the paper a very valuable one and felt that they should be very grateful to Major Wall for having brought that subject before them. It was, as had been expressed, "a little of the old times."

Mr. H. King agreed with most of the speakers that the condition they were discussing was probably due to dietetic errors, and, as Sir John Moore had said, often a tired animal. The number of cases one met with nowadays was very much smaller than it used to be, and probably that was due to the fact that the hours were shortened. In his view, many of these cases were caused by irritation of the intestine by worms; he had in many cases found nearly a pailful of the *Ascaris megalocephala*, and he thought they must often play a very important part.

The method of diagnosis was a question which, of course, could not be determined at the onset, and as time went on and the animal showed no improvement, one generally suspected either twist or some impaction of the bowel. He thought that those cases in which Major Wall rather flattered himself that he had unravelled a twist, in which he had been manipulating perhaps for hours and the animal had got better, might have been cases of impaction of the bowel and not due to flopping over of the bowel or volvulus. He, too, had had difficulty on *post-mortem* in trying to reduce a volvulus of the bowel, and he had seen it, as had Mr. Perryman, wound round many times. Those

cases were not difficult to diagnose during life, on rectal examination. If the horse had a twist he thought there was only one possible result—that was death. In his view, it was impossible to adopt any operation that would replace the bowel into its normal position.

Lieut.-Colonel E. P. Argyle observed that there were two things that he should like to mention. He had seen a good many horses die of twist and, as far he knew, he had never seen one die at the *post-mortem* of which he had not attended, and he thought that he had never attended the *post-mortem* on a horse that had died of twisted gut when there was not an aneurism of the anterior mesenteric artery.

The other point was this: Major Wall had brought out the danger of keeping the horse that was suffering from colic constantly on the move—the danger of the horse being unable to relax and lie down and give the intestine a chance. He had heard a good many people discuss this point and he had been present at a considerable number of cases when men of more experience than himself had been in charge of the case, and he had always understood that the reason for keeping the horse on the move when suffering abdominal pain was that the horse's stomach was overloaded and very much impacted, and if the animal, with his stomach or any portion of his intestinal tract overloaded, suddenly threw himself on the floor, it was possible for the viscus to go off like a paper-bag and tear from one end to the other. That, he had always understood, was the reason for keeping the horse on the move.

Professor James McCunn said that it was very refreshing to get an equine paper at the meetings of that Society; he thought they generally had a surfeit of dogs and cats.

The subject before them had been discussed from all points that evening. He thought it was as well to classify things. In his view, all the various factors which had been put down as the direct or indirect cause were all correct. To begin with he thought it was best to start with a classification of twists. In his opinion, the classification was as follows: Twist of the mesentery, twist of the small bowel and twist of the large bowel. To his mind, they varied in their intensity as follows: Twist of the mesentery was the most serious and the most acute, twist of the large intestine came second and twist of the small bowel third. He further classified them as either complete or incomplete; one could have a complete twist of the mesentery or an incomplete one, the same with the large bowel and the same with the small bowel.

Coming to causes, one could classify them: Causes outside the bowel, causes in the bowel wall and causes found in the lumen of the bowel. Regarding causes outside the bowel, the parts affected were, of course, generally the mesentery or some of its attachments. He was sure that in this connection accidents on the street were of great consequence. Another cause outside the bowel was a rupture of the mesentery. He had seen a few cases due to this cause, a rent having occurred in the mesentery, a loop of bowel passing through, and so causing a volvulus. He had operated successfully upon a cat affected in this way.

Causes in the bowel wall might be numerous—such things as diverticula. Only recently he had had a case in which there was what, to his mind, resembled a Meckel's diverticulum, near the ileo-cæcal valve. The patient was a horse that was subject to colic; it had had it many times—roughly once a month. In the end it died of a twist, and the twist had its site of origin at this diverticulum, which he believed suddenly assumed larger proportions, due to its becoming distended, and so interfering with the peristalsis.

Before leaving the bowel wall he must add what, in his opinion, was the most frequent cause of twist, and that was exhaustion of the bowel wall, found in tired horses. It was a similar thing to what one found in foals; one found it in foals and sometimes in dogs. It was a fairly frequent sequel to abdominal operations. It was a condition which was now called ileus-paralyticus, in which one portion of the bowel became paralysed and refused to act, then the part before or behind the affected portion acted more strongly than usual and turned around this damaged portion. That was one of the most potent causes in the tired horse.

Causes inside the bowel were generally dietetic, or due to some obstruction. They must take notice of the dietetic causes, because in their literature they had got distinct proof that dietetic errors were a real cause. He thought it was Professor McCall who first drew attention to this. Years ago, he understood, it was the custom to give horses hot food at night, and the frequency of colic and twist was enormous. In his practice in Glasgow Professor McCall had this practice of giving hot food stopped, and he got a great diminution of colic and twist. Further, it was the custom, up till about 1870, for horses not to be fed when they were on the road, and McCall, he believed, was one of the originators and advocators of the common nose-bag. Again, that innovation produced a great diminution in the incidence of colic and twist. As they proceeded along to the present day, and alterations in methods of feeding had been introduced, colic had diminished; it was rare now to find people using inferior oats, grain or hay. He was sure that dietetic trouble was really a very potent cause.

As regarded other features inside the lumen of the bowel, he thought the most common contributory cause was the presence of worms because, in his limited experience, he did not think that he had ever seen a case of twist *post-mortemed* without finding worms. He also agreed with Captain Macdonald that one nearly always found an apparently impacted stomach. He had found these cases in horses that had reached home and then had colic with death resulting from twist, and he had always attributed this apparent impaction to the fact that the pain came on some time after the horses had been home and they had eaten their food.

Concerning the diagnosis, he was afraid he had never been sure of his diagnosis. The only time, nowadays, that he gave a definite opinion as to twist was when the cases were near the end; they were sighing, their pulse was running down and they had a cold, clammy mouth—he paid great attention to the last symptom.

The Reply.

Major R. F. Wall, replying to the points raised in the discussion, thanked all the Fellows very heartily indeed for the criticisms they had made on his paper, and observed that he had come to the conclusion that they all agreed with each other, which was a very nice state of mind to be in. (Laughter.) There was, however, just this point of difference, that he thought the majority of speakers were regarding what he looked upon as the predisposing causes of twist of the bowel as the actual cause—probably that was because he was old-fashioned.

In regard to dietetic errors, he mentioned them in predisposing causes in connection with abnormal conditions of the alimentary tract, but he was sorry that by some oversight he left out the word "fatigue." He certainly agreed that feeding had a great deal to do with colic and twist. It seemed to him that a great many of them had been working at the same end as he had been working at, and that was the wrong end; there had been a lack of trying their very utmost to make a diagnosis in the early stages, but that was their only hope.

What he liked especially about Dr. McCunn's remarks was classification; that was what one would like to see done, when the definite actual causes could be identified, but he was hoping that they, the elder members of the profession, could help the younger ones to come to a definite conclusion as to the actual cause of twist; that was what the profession lacked to-day. It was all very well to say that sudden exhaustion was a cause of twist; he was not going to say that it was not due also to fatigue of the bowel. He did, in the paper, say that a cause of twist was fatigue or paralysis of a portion of the bowel: he did not care what caused the paralysis; the point was that one got a certain amount of inco-ordinate muscular action and that, he thought, was the time when twist took place.

Replying to Mr. Perryman, he wanted to say one thing first concerning violent strain causing twist. His belief was that violent strain and sudden exertion was the cause of the initial displacement, and he was convinced that after the first initial displacement the coiling was very rapid. Mr. Perryman's citation of a case where the horse had 13 twists, brought to his mind the case of a horse belonging to a coaching man, who went with him (the speaker) to see the *post-mortem*. Thirteen loops were twisted round, and they could not unravel the gut any further. That horse lived in agony for twenty hours, and the twist tended to support the view that once an intestinal displacement had taken place the twist rapidly went on and caused strangulation.

With regard to worms, he did not believe that worms were the actual cause of twist. Every *post-mortem* they made disclosed worms in the horse, and if worms were the cause of twist, why did they not get more cases? He did say that when one got a large number of worms concentrated at one portion of the bowel they tended to weaken it, deriving nourishment from it; that would be a potential cause of twist, in that twist was apt to take place at that point.

He agreed with everybody that irregular feeding and dietetic errors were a cause of twist, but not that they were the actual causes. With the errors in dietetics and bad feeding in days gone by they used to get a tremendous amount of colic; now, with better feeding and better-balanced diets, and fewer hours of work, they did not get so many cases of colic or of twist.

His heart went out to Sir John Moore, who talked about Manchester, where he (Major Wall) had spent about six years, and he remembered the number of colic cases they used to get there, and so could sympathise with him. He believed there was a good deal in what Sir John had said; that the hard water of Manchester had a good deal to do with it.

Answering Mr. Jones, with regard to the watering, etc., one knew that the watering of horses at irregular times rendered them liable to colic, but he gave them aired water at every opportunity. He believed that the lack of water was a serious predisposing cause of twist, especially of the small bowel.

With regard to aneurism of the anterior mesenteric artery, he did not know whether or not it had been his lot to meet with more cases of twist of the small intestine than other people, but he would say that the only cases of aneurism of the anterior mesenteric artery associated with twist of the small intestine with which he had met had been in horses in the country. He was not prepared to accept the theory that twist of the small intestine was always associated with aneurism.

He quite agreed with Captain Macdonald and other speakers that death in complete twist of the large colon was much more rapid than in cases of twist of the small bowel. Twist of the mesentery was usually associated with deaths in the street, as Dr. McCunn had told them, and death was generally very rapid—within a few hours.

In regard to horses dying from septic pneumonia, due to their having been given drenches, he agreed that it was no easy matter to give a drench to a horse with colic; his own treatment was nearly all hypodermic. He had a case in quite recently, from Kensal Rise, however, in which he knew for a fact that the animal had never had a drench. He managed to reduce this partial twist and was rather pleased about it, but a week after the horse was dead from septic pneumonia. How did that septic pneumonia take place? It could not all have arisen from absorption from the bowel, and his own opinion was that horses were put down in loose boxes with quantities of straw or hay, and that they went mad in that box—usually a dusty one—throwing the bedding about until it was cut into small pieces. Then, with every inspiration, they inhaled an enormous quantity of dust from the broken-up bedding. That, he thought, was the cause of septic pneumonia following twist.

He did not think that one could very easily mistake a case of impaction for a case of twist, because one could usually feel impactions. Certainly when he had had impactions he had massaged the bowel hour after hour, sometimes for three or four days in his spare time, before he got results.

Mr. Jones had asked him a question to which he (Major Wall) also wanted to find out the answer. He (the speaker) gave up morphine long ago, and he usually relied on chloral, combined with sodium bicarbonate, in big doses. Overloaded stomach was a predisposing cause, and it only became an actual cause of twist when, through movement or inco-ordinate muscular action, it caused a displacement of the bowel.

It seemed to him that the older members of the profession waited too long; the great thing was to make an early diagnosis. He was hoping that someone there that night would say how easy it was to locate all those muscular bands. (Laughter.)

Another Fellow had asked him why he did not mention giving an enema. He did give enemata, pumping as much fluid into the bowel as he possibly could.

Mr. McIntosh enquired if he had ever succeeded in untwisting a complete torsion of the large colon. He admitted that he had not; he had tried a good many times, but had never succeeded.

He would impress upon them the necessity of getting on the job early. There were two words which were not in his vocabulary—"cannot" and "impossibility." He thought that if one could get to work early, make a reasonable shot at diagnosis and then, by some mechanical means, flush the bowel and ultimately empty the greater portion of its contents, one might then, by manipulative surgery *per rectum*, be in a position to untwist the bowel. Following that, there was no use in wasting time, and one should get down to surgery; the only thing was that nobody would let one make the attempt.

Bromide Poisoning in a Monkey.

Dr. James R. Salmond (Appleby Magna, Burton-on-Trent) writes in a recent issue of *The British Medical Journal*: "Our young pet drill monkey, weighing 7-lb., last week managed to secure a sample packet of sedobrol which had just been unpacked from the post, and devoured 5½ tablets before dropping the box. Treatment to recover them having failed, he was put outside under observation. At the end of three hours he developed vertigo, staggering gait, and finally spasmodic muscular movements somewhat like chorea, accompanied by threatened syncope. He was kept awake for an hour by massage, handling, and flicking with wet towels, and the collapse was met by amyl nitrite capsules and heat. Finally he became comatose, and could only be revived and the heart's action maintained by hypodermic injections of 1/200 grain of digitaline and strychnine, ½ c.cm. of pituitrin, 15 minim doses of ether, and brandy when he could swallow. On the third day the cortical irritation grew less, and he showed only a few jerky movements of the head, but the constipation became absolute, and tympanites developed, accompanied by anuria. The heart's action became very feeble, and artificial respiration was resorted to as well as the hypodermic injections, while turpentine stupes were applied all that day, and three enemas (which were retained); he was also given a gastric lavage with potassium permanganate solution. Treatment was continued during the night, but the distension was tremendous, and a 2 grain dose of calomel had no effect. As he was still alive on the fourth day we administered ½ grain of calomel hourly, and a total of 5½ grains was taken before an action took place. This gave relief, and an hour later, although very thin and weak, the patient had recovered sufficiently to steal a banana left near his box. Since then he has made rapid progress, and save for loss of flesh seems little the worse. I understand that the amount of sodium bromide in each sedobrol tablet is about 17 grains, making the total dose taken about 90 grains."

Some Remarks on the "Splashing" of Meat.

By D. J. Anthony, M.R.C.V.S., D.V.S.M.

The recent article by Messrs. Tweed, Clark and Edington on the above subject interested me immensely, and the fact that I have been studying this particular subject for the last six years is my excuse for offering these few remarks thereon.

The three authors mentioned are apparently under the impression that all references to this subject in the literature have been the outcome of controversy over the use of mechanically-operated instruments in the slaughter of animals. They do not appear to be aware of the work of M. C. Hall, PH.D., D.V.M., published in the *American Journal of Veterinary Medicine* for August, 1918, on lesions due to the use of shooting methods in experiments on dogs.

In conducting experiments on "splashing" it is necessary to bear certain facts in mind, otherwise the results are apt to be rather misleading. It should be noted that "splashing" is of primary importance in the pig, an animal whose flesh is preserved and may not be consumed for some months after slaughter, rather than an animal whose meat is sold in the fresh state, as beef and mutton. A few hæmorrhages in the meat of cattle and sheep are of hardly any importance, in view of the fact that such flesh undergoes no process of preservation. I mention this, as most inspectors of fresh meat who have written on "splashing" during recent years do not seem to have considered the matter from that aspect at all.

Messrs. Tweed, Clark and Edington's article is one of the most valuable on this subject that has appeared for some time. But they will perhaps pardon me for pointing out to them certain points which appear to be contrary to my own findings. I agree that the *cause* of "splashing" is not the interval elapsing between stunning and bleeding, but when they go on to state that "very violent convulsive movements were possible after shooting without any signs of subsequent 'splashing,'" I am inclined to be a little dubious of their methods of examining for "splashing." They mention the diaphragm and loin muscles as being places from which specimens were taken, but throughout their article no mention is made of the sites where "splashing" is most commonly found, *viz.*, the ham muscles, and heart muscle, nor do they mention the condition of the lungs in shot animals. I venture to suggest that had they examined those sites carefully in all their experiments, their conclusions would by no means be so vague; this applies especially to the sheep that was shot twice, but whose carcass showed no evidence of "splashing."

I am aware that the pig is not such a good subject for blood pressure experiments as the sheep, but nevertheless it is only in the pig that "splashing" is of great economic importance. In this animal splashing seems to be more common than in any other food animal, and I have always been under the impression that this may possibly be due to the comparatively excessive fatness of the pig, causing the smaller blood-vessels to be more easily ruptured.

With regard to "fear" as a predisposing cause of "splashing," it is obvious that if this were correct, pigs killed by the ordinary methods ought to show a large percentage of "splashed" carcasses, as any handling tends to produce "fear" in the pig. Yet the three authors are agreed that the carcasses of animals slaughtered without being first stunned do not show evidence of "splashing." It is only in stunned animals that "splashing" occurs.

It is in their conclusions drawn from their experiments that the authors of the article in question show a certain degree of weakness. They appear loth to incriminate the shooting method in any way, although the evidence, to my mind, is conclusive throughout their article. They state that in their "opinion" there is no single cause of "splashing"; the condition is "produced by an association of factors of which violent inco-ordinated muscular contractions and engorgement of muscle vessels at a higher pressure than normal are the most important. These main factors may be produced or aggravated by several conditions; intensity of muscular contractions may be increased by a restraint or the position of the animal; muscular engorgement may be accentuated by previous exertion or perhaps by fear and also by high blood pressure."

If violent inco-ordination of muscular action is one of the most important causes of "splashing," why not follow it up and point out that the centre for the co-ordination of muscular activity is situated in the brain, and that, therefore, any disturbance of the brain, as is the case in shooting or pole-axing an animal, is bound to result in inco-ordination of muscular contractions? They have already demonstrated, as Hall did, that a rise of blood pressure and consequent engorgement of muscular blood vessels follows the stunning.

Fear may be ruled out, as surely fear, if present, is not more common to one method of slaughter than to another. The writers state in their article that, "in one long series of cases where the animals were hoisted by the hind legs and bled without previous stunning, and where the struggling was very violent, *no single case of "splashing" was seen.*" Did none of these animals show fear?

The most careful consideration of the findings of Messrs. Tweed, Clark and Edington would appear to lead to one very definite conclusion, and that is that it is the injury to the brain which is directly or indirectly responsible for the condition known as "blood-splashing," and that even though in some cases shooting may not result in "splashing" obvious to the naked eye, further tests of the flesh would reveal a high blood content not found in animals slaughtered without such preliminary stunning.

Milkers' Whitlow.

A. KITTINGER (*Zentralbl. f. Chir.*, November 29th, 1930, p. 2980), who records an illustrative case, states that this condition has received little attention owing to its essentially mild character, which allows the milkman to continue his occupation. It is frequently met with in large dairies among the milkers and those employed in cleaning the cows. The whitlow is produced by the fissures in the callosities on the flexor aspects of the milkers' hands becoming inflamed, the irritation being kept up by penetion of small hairs from the cow's udder during milking. Histological examination reveals plasma cells, a large quantity of lymphocytes and pus cells, and inclusion bodies containing fragments of hairs and detritus. Kittinger's patient contracted a subungual whitlow of the right thumb, complicated by periostitis and osteitis. The man was able to resume his work three weeks after an operation, when granulation tissue and masses of fine hairs were removed with a sharp spoon.—*British Medical Journal.*

The Veterinary Record.
January 31st, 1931.

Horse Practice.

In these days of motor transportation, when even the minds of veterinary surgeons follow the rule of motor cars, it is very refreshing to turn to the discussion of practical horse problems at the divisional meetings of our Association. True it is that while progress in a profession and in professional affairs is measured by scientific attainments in the elucidation of the causation of disease, its prophylaxis, and its treatment on advanced scientific lines, there still remains that practical consideration of cause and effect which will always bear enquiry, and with profit to ourselves. We do well to get away sometimes from the laboratory findings and procedure of research workers, and to apply ourselves to the common everyday things which relate to the general practitioner. Much can be learned from the train of symptoms ordinarily presented by diseased conditions and in the practical handling of treatment of such conditions on the evidence or symptomatology in clinical practice.

Major R. F. Wall's paper on "Torsion of the Bowel," presented to the Central Division of the Association, and the experiences of members which are recounted in this week's issue are not only very welcome and instructive but are reminiscent of old times. Lieut.-Colonel H. T. Ryan's paper on "Surgical Aids" to the Veterinary Medical Association of Ireland, recorded in the issues of November 8th and November 29th, is also an object lesson in this respect. There are still many veterinary problems in horse practice which will bear elucidation, and on which the views of our older and experienced practitioners will form good and valuable copy and instruction for our younger and rising generation of practitioners. We therefore hope that Divisions will not overlook this practical necessity in the selection of papers for discussion, and that those members who are experienced in horse practice will come forward with papers on subjects which essentially relate to the horse. Aspects of disease and inefficiency in horses will always provide a profitable basis or bases for discussion, to say nothing of promoting that feeling of enjoyment which is inherent in the consideration of an old friend with whom we have been so much associated in our means of livelihood, and which happy relations we trust will be continued. "*Lest we forget*"! It has further been suggested to us that a veterinary surgeon experienced in the shoeing of horses and in the prevention of lameness and inefficiency incidental thereto, should present a paper for discussion on that subject. With roads and streets now constructed specially for motor traffic, it is constantly being thrown at the veterinary profession that it is its province, as advisers and experts, to devise or suggest a shoe or some system of shoeing which will meet the conditions of slippery roads. At all events present times would appear to be favourable for exchange of opinion on a matter which may have far reaching effects, creditable to the profession, and appreciated by the public.

From The Veterinarian,

January 1st, 1831.

It will be seen by reference to our title page that an event has occurred most essentially connected with the improvement of our profession. If, in the language which we not long ago quoted from Mr. Castley, "our art seemed to sink beneath the dignity of collegiate science, and the elder sister appeared to disown the relationship, or, secretly ashamed of the Cinderella, scarcely acknowledged the connection," the University of London, better adapted than that to which he referred, to the increasing knowledge and liberality of the times, has admitted within its precincts a lecturer on veterinary medicine and surgery. It becomes not us to speak of him who will have the good fortune and the honour to appear as the first advocate of our claims to professional and public regard in this seat of learning; but the competition that will ensue, and here we *will* speak, the *honourable* competition, while it will rouse every power of the new lecturer, will necessarily, and not slowly, bring back the old school to those principles and to that plan from which it ought never to have deviated. We refer to the language of the founders of the Veterinary College (or rather, we believe, we may say, of John Hunter, the life and soul of the undertaking), in their admirable appeal to the public when that seminary was first opened. "The treatment of the diseases of animals being taught scientifically, men of liberal education will cease to look on veterinary medicine as a mean and degrading profession. They will be convinced that its inferiority to human medicine consists not in the arts themselves, but in the relative importance of their respective subjects; and that it deserves to be considered as a distinguished science, occupying an eminent station in the scale of human knowledge."

Has this been the station which the veterinary art has held, or, for many a year, could hold? Glasgow has lately appointed its veterinary professor; and now, for the first time in the Southern part of the British Dominions, will the just claims of the veterinary profession begin to be vindicated in another university, and (still in the language of John Hunter) "that ancient error be exploded, that, while medicine is regarded as the province of the learned and the few, the veterinary art is supposed to be on a level with the most ordinary capacities."

The feeding of onions either cooked or raw in quantities of 15 grams or more daily per kilo of body weight produces a severe anæmia in dogs.—Sebrell, *Pub. Health. Rept.*

The Lord Mayor.

We have much pleasure in publishing the following letters which have passed between the Secretary of the R.C.V.S. and the Lord Mayor :—

10 Red Lion Square,
W.C.1.
January 10th, 1931.

Sir,

At the Quarterly Meeting of Council of this College, held on the 9th instant, which was its first meeting since your election to the high and distinguished office of Lord Mayor of London, a resolution was unanimously passed, on the proposition of Colonel Brittlebank, that the Council do convey to you their sincere and cordial congratulations. Colonel Brittlebank referred, amid applause, to the fact that for many years you have taken a keen interest in matters relating to the health of animals, and have on many occasions shown your friendship for the veterinary profession. The resolution was carried with acclamation, and in transmitting it to you, my Lord Mayor, I am directed to add the wish that your year of office may not only be one of the most distinguished but may bring you personally much happiness.

I am, Sir,
Your obedient Servant,
Fred Bullock,
Secretary.

The Rt. Hon. Lord Mayor of London,
Mansion House,
E.C.4.

. . . . .

The Mansion House,
E.C.4.
January 12th, 1931.

My dear Sir,

I am obliged by your letter of the 10th instant to hand this morning, the contents of which I greatly appreciate.

Will you kindly convey to Colonel Brittlebank and the Members of your Council my warmest thanks for their very cordial resolution of congratulation and good wishes. It is always a great pleasure and privilege to me to do anything in my power to assist the veterinary profession.

Believe me,
Yours very truly,
W. Phené Neal,
Lord Mayor.

Fred Bullock, Esq., ll.d.,
Secretary & Registrar,
Royal College of Veterinary Surgeons,
10 Red Lion Square,
W.C.1.

Statisticians list 205 separate and distinct causes of death, but eight of these causes do two-thirds of the mischief. They are: Heart disease, cancer, pneumonia, nephritis, cerebral hemorrhage, accidents, tuberculosis and hazards of infancy. The chances are two to one that the average person will succumb to one of these eight destroyers.—*Veterinary Medicine.*

Eleventh International Veterinary Congress, London.

August, 1930.

Abridged Papers.

(*Continued from page* 82.)

Scientific Feeding of Animals.

By Dr. P. Dechambre and Professor E. Letard.
Ecole Nationale Vétérinaire d'Alfort, Alfort (Seine), France.

The method which yields the best results in the analysis of foodstuffs is the biological method, *i.e.*, observations made on living animals which have been kept under certain conditions for long periods of time. Biological analysis ought to be supplemented by chemical analysis, and can be carried out in an exact fashion only in the laboratory where small animals may be used.

The nature of the minimum necessary amount of nitrogenous matter is more important than the amount. Some nitrogenous substances, such as lysin, tryptophane, arginin, histidin, are necessary, others indifferent. The percentage of indispensable amino-acids in various definite nitrogenous matters should be determined, *e.g.*, in casein, lactalbumin, gliadin and glutenin of wheat, zein of maize, etc. The nature and amount of various necessary amino-acids for a given animal under given conditions should be determined. The ration can be calculated according to the minimum law of Osbourne and Mendel, *i.e.*, "The necessary and sufficient amount of any protein which should be included in the ration of an animal in order to allow growth or maintain nitrogenous equilibrium is determined by the percentage of indispensable amino-acid in the composition of the protein."

Unfortunately, maintenance rations have been calculated exactly only for small laboratory animals. Nevertheless, the presence or absence of amino-acids necessary for young or adult animals can be determined.

It is important to distinguish between albumenoid and non-albumenoid nitrogenous matter. Recent feeding-tables make this distinction. The question of the use of non-albumenoid nitrogenous matter has been almost solved by numerous experiments on herbivores in which it has been found that amides and ammoniacal salts can form up to two-thirds of the ration. This is useful, as albumenoid nitrogenous matter is expensive and many vegetable foods contain large amounts of amides.

According to certain authors, carbohydrates are indispensable, but this is not an important point, as carbohydrates are in large quantities in every ration.

The minimum amount of fat is important, as many vegetable foods are deficient in fat and as it seems to be used in the utilisation of protein. The relative value of fat as compared to protein has not yet been definitely established.

The minerals necessary for the body are not fully determined. The mineral matter may be classified as follows :—

1. Plastic mineral matter present in large amounts in the living body, *e.g.*, calcium, phosphorus, sodium, potassium, sulphur, chlorine, magnesium.

2. Catalytic mineral matter present in small amounts and sometimes detected only by spectrum analysis, *e.g.*, zinc, arsenic, manganese, iodine, copper, cobalt, titanium, nickel, bromine, fluorine, boron, silicum.

The three most important elements are iron, calcium and phosphorus. The foods rich in iron are well known. Phosphorus and calcium are most important as they form three-fourths of the total ash of the body. The best method of administering these elements in the ration has long been a problem. It is now known that the anti-rachitic vitamin D, ultra-violet rays and irradiation of certain substances play a part in the metabolism of calcium. Sodium chloride helps to maintain osmotic pressure of the body fluids and to regulate the acid-alkaline equilibrium. The hydrochloric acid of the gastric juice is derived from the sodium chloride of the blood. Many foods are deficient in chlorine, but this can be remedied by allowing animals a ration of salt.

The Determination and Importance of Immeasurable Substances.

Vitamins cannot be measured by chemical or physical means, but biological analysis shows that they are indispensable. The nature of the vitamins necessary is known but not the amounts. Research has confirmed common knowledge already known from practical experience. The question of vitamin deficiencies is very important to veterinarians. Vitamin D is fat soluble and plays a part in the deposition of calcium. Vitamin D deficiency leads to skeletal disease.

Alimentary equilibrium depends on the following ratios.

(*a*) Ratio between the bulky foodstuffs and the concentrates.

(*b*) The fat-protein ratio.

(*c*) The nutritive relation of the last two mentioned. Other ratios of importance are :—

(*d*) Acid-alkaline ratio. The acid-alkaline equilibrium of the body fluids is partly dependent on the food. A balance between foodstuffs producing excess alkali and those producing excess acid should be maintained. Tables giving this information are now available.

(*e*) Ratio between ketone-producing substances and anti-ketone-producing substances. This is not so important for herbivores, as ketonic substances are derived from the incomplete disintegration of lipoids, substances generally scanty in the rations of these animals.

(*f*) Mineral equilibrium, especially the ratio of phosphoric acid to calcium. This should be almost unity. Neglect of this may lead to rachitis in young animals and osteomalacia in adults. This ratio varies considerably in plants according to the species, conditions of growth, age, etc. Concentrated foods such as cereals, starches, oil-cakes, contain much phosphorus, but not much calcium. Therefore, calcium and substances which will help to fix calcium, must be added to the ration. The ratio of potassium to sodium would also seem to be important.

(*g*) Ratio between energy-yielding substances and plastic, constitutive, systatic and catalytic substances.

(*h*) Ratio between mineral matters and carbohydrates.

(*i*) Ratio between carbohydrates and vitamin B.

It is difficult to apply the principles gained by experiment to practice. Usually feeding tables give the mean value of a foodstuff for any species of animal. The value of a food should be calculated for each species of animal. The pig, for instance, will not utilise foodstuffs rich in cellulose as does a ruminant. It would be better to give the value of foods when used for a special purpose. Milk cows benefit from foods rich in proteins, such as oil-cakes, to a much greater degree than do working oxen or cattle intended for beef.

Some international method of standardisation of the value of foodstuffs should be established. The content of amino-acid, vitamins and essential minerals should be determined. Animals vary individually and racially in the utilisation of foodstuffs; species, age, race, condition of experiment, preparation of the food should all be considered.

The scientific feeding of animals is important to veterinarians from

(1) Medical point of view; disease may result from insufficiency of food, badly balanced rations, badly prepared and badly preserved foods.

The ill-nourished animal is a breeding ground for disease.

(2) Zootechnical point of view. Scientific feeding is one of the essential factors in the improvement of animals, and is justified on economic grounds.

Examples of the results of scientific feeding are cows giving ten times more milk than is needed to feed their young; birds producing ten times more eggs than they would naturally; fat animals ready for killing at extremely early ages. Animals so highly specialised are more sensitive and exacting and their feeding should be carefully studied.

C. McG.

The Scientific Principles of Nutrition, with Particular Reference to Percentage Calf Crop in Range Herds.

By George H. Hart, v.m.d., m.d.,
Professor in Veterinary Science, University of California, Branch of the College of Agriculture, Davis.

The initial part of this paper reviews the present situation in nutrition. Reference is made to the establishment of the vitamin doctrine, which was quickly followed by research which has led, up to the present, to the differentiation of six vitamins. The intensiveness of vitamin research, which necessitated the use of purified foods, brought to prominence the rôle played by minerals in nutrition. The commercial exploitation of the scientific discovery of the importance of vitamins and minerals resulted in a hesitancy, which is not unnatural, on the part of stock-owners to apply the new doctrine. Now, however, the economic importance of our new knowledge is being appreciated. This paper proceeds to discuss the essentials of an adequate diet. Reference is made to the fact that some proteins have a greater biological value than others, and the importance of combining the various proteins so as to obtain the best economic results is stressed. Of particular interest in this regard is the work of Martin and Robertson in Australia on the value of sulphur to animals and the importance of cystine in the carrying capacity of pasture for wool production. The relation of the vitamin content in hay to the method of hay-making is brought to light by the work of Steenbock and Hart. They kept a goat indoors for four months on straw and grain until its fæces became dry, hard and small in bulk, with failing appetite and slight unresponsiveness to call or change in environment and steady and consistent negative calcium balance. The

animal was then kept out-of-doors on green grass and oats. In two months there was a gain in weight of four pounds, and all symptoms of collapse were dispelled with a retention of lime. It is important to note that change in intake of lime was not responsible. According to Steenbock and Hart, "Some subtle change in the trend of metabolism was instituted by the temporary variation in feed intake, as well as environment, which now enabled the animal to assimilate lime formerly unavailable." Steenbock *et al.* have also reported further studies with rats, goats and chickens on the antirachitic properties of hays as related to climate conditions, and the effect of irradiation with ultra-violet light. They showed that hays vary greatly in antirachitic content, depending upon their exposure to sunlight. Clover hay made with exposure to sunlight showed considerable power, while that made in the dark was inactive. The same hay excessively weathered by sun, dew and rain was reduced in antirachitic action, but when irradiated this was greatly increased. Irradiation of a milking goat brought about positive calcium balance when feeding the weathered hay, which by itself had no beneficial effect.

The writer quotes similar work by himself and others, and concludes that while alfalfa hay is an efficient carrier of calcium, the production of a positive or negative calcium balance in milking cows will depend upon the quality of alfalfa; by quality is meant the relative degree of destruction in the curing process of the unknown factors affecting calcium assimilation. It appears that roughages cured without exposure to sunlight are rich in vitamin A and poor in vitamin D, and *vice versa*.

Though Theiler, Green and du Toit have shown that vitamins A, B, and C do not call for special consideration for animals reared under *natural* conditions, evidence is produced to show the necessity for an adequate supply of vitamin A for milking cows, calves, poultry and pigs.

This paper gives a record of valuable work done in connection with minerals and makes clear their close association with vitamins in the normal nutrition of the body. Evidence is accumulating that attention must be given to the ratio of certain minerals to others, particularly calcium and phosphorus, for optimum nutrition. Theiler *et al.* showed that the mineral requirements for growth are higher in the case of phosphorus than in the case of calcium, and a ratio of P_2O_5 to CaO as high as 3 to 1 is not necessarily disadvantageous. Many animals are, however, required to subsist on diets containing calcium greatly in excess; but pigs are supplied rations high in phosphorus and low in calcium. (Reference is made to the importance of knowing if the ratio is figured on the elements or on their oxides.) Haag *et. al.* have shown that alfalfa hay may contain from 3 to 25 times as much calcium as phosphorus, but the ratio has usually been between 5 and 8 to 1. The phosphorus content of alfalfa hay alone is not adequate for more than moderate milk production; there are, however, indications that the Ca/P ratio may be quite high without producing nutritional disaster. Meigs *et. al.* suggest that two parts or more by weight of calcium to one of phosphorus constitutes an excess, interfering with phosphorus assimilation. They showed that the rate at which calcium is assimilated from hay depends largely on the manner in which it is treated after being cut, and that rain is particularly detrimental.

Clinical and Case Reports.

The Use of Formalin in the Treatment of Stuttgart Disease.

By J. J. Davies and J. McCunn, West Ham.

Definite Stuttgart disease has in all our previous cases terminated fatally. Many treatments have been tried but all to no purpose. We have classed the disease amongst the incurable.

Stuttgart has assumed more dangerous proportions recently. It has always been with us, but its occurrence has been spasmodic and generally in isolated cases. It has for some time been observed that it occurs amongst greyhounds, as it were in crops. There has been no definite evidence of contagion, but it has not been unusual to get a multiple outbreak in a kennel.

Those particularly susceptible are young dogs. In our cases they have generally been recently imported from Ireland. The percentage fatality has been very high.

Many observers consider that the so-called "hæmorrhagic enteritis" of greyhounds is a form of Stuttgart disease. It has been called "Acute Stuttgart." With hæmorrhagic enteritis we have had success with the use of formalin given intravenously. It was resolved to give this treatment a trial in cases of Stuttgart disease.

Up to date three very bad cases have been treated, followed by two recoveries. It is not usual to base findings upon the result of three observations, but the results were, in our minds, so impressive that we venture to publish in the hope that others may give the treatment a trial.

Appended are the case histories.

Case No. 1.

A greyhound, 16 months old, imported from Ireland on November 1st, developed tonsilitis with a temperature of 103°-105° F., after being in kennels for one week. This gradually disappeared, the patient being none the worse for the illness.

On November 20th, the dog developed symptoms of gastric catarrh, the temperature being normal, but refusing all food, its breath having a "stomachy" odour. By the

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The writer has made a special study on the effect of under-nutrition on percentage calf crop in range herds. Emerich and Loew, Tuff, Eckles *et. al.*, Evans and Bishop and others had shown definitely that nutrition played a part in reproduction and that the normal functioning of the ovary could be influenced by qualitative and quantitative under-nutrition. The writer has been impressed by the very extreme degree of under-nutrition to which range cattle may be subjected in semi-arid areas during parts of practically every year, and refers to the observations of Walker and Lantow to the effect that 78 per cent. of losses in New Mexico were due to under-nutrition. The result of such poor feeding was a low percentage of calves born on the range and, obviously, more knowledge is required regarding the proper use of the natural vegetation and efficient supplementing of it with suitable nutrients. The problem involves a study of the range pasture plants at various seasons of the year. The writer is carrying out analyses of the most important annual forage plants.

R. G. L.

22nd, symptoms of Stuttgart disease were evident—temperature being subnormal, ulcers on mucous membrane of mouth, gums inflamed, a brownish black coating on molar teeth, with the typical evil-smelling breath. The eyes were sunken, the skin cyanosed and the loss in condition most marked.

At this stage ℿ xiv formalin in 4 c.cs. sterile water was injected intravenously. On the following day the patient maintained its strength, when the same injection was repeated. The day after it showed definite signs of improvement and lapped white of egg in water. It was kept on this diet for three days plus water *ad. lib.*, when this was supplemented with milk and water in equal parts, and later minced raw beef. Complete recovery occurred in three weeks.

Case No. 2.

A greyhound, three years old, taken ill on December 5th, when nothing definite was diagnosed. On the 6th, gastric disorders were manifested, whilst on the 8th, the picture was one of typical Stuttgart disease.

An intravenous injection of ℿ xv formalin in 4 c.cs. sterile water was given. The dog died 20 hours after the treatment.

Case No. 3.

A greyhound bitch, 18 months old, and a new arrival in the kennels, had a similar history to case No. 2; being first noticed ill on December 10th, and Stuttgart disease being evident on the 12th.

The same procedure was adopted as with case No. 1—two injections of ℿ xiv in 4 c.cs. being given with an interval of 24 hours.

The bitch made an uneventful recovery, being returned to the racing kennels after three weeks' convalescence.

Bacterial Abortion in Mares and Normal Flora of Virgin Mares.

By Z. Morcos, M.V.Sc., F.R.C.V.S., D.V.H.,
Professor of Bacteriology, Cairo School of Veterinary Medicine.

A.—Bacterial Abortion in Mares.

Case 1.

An English thoroughbred mare, nine years old, examined five days after abortion. Abortion took place at the eighth month of pregnancy twice in 12 months.

Case 2.

Nine-years-old thoroughbred English mare, aborted at the eighth month of pregnancy and did not hold on being served 12 months after abortion. The mare was examined 18 months after abortion.

Case 3.

A cross-bred aged mare, was examined after failing to hold, although she was served five times at various intervals by different stallions.

Case 4.

A cross-bred mare, seven years old, without a detailed history except of sterility.

Case 5.

Eight-years-old cross-bred mare, simply reported sterile.

Technique of Examination.

1. The external genitals were cleaned with alcohol; a sterile swab was placed into the vagina and well rubbed against the membrane; cultures were made on different media, incubated ærobically and anærobically.

2. Serum was obtained from the blood of the five cases and the aggiutination test was made with the isolated bacteria and *B. abortus* Bang and *B. abortus equi*.

Result.

Besides saprophytic bacteria, the only organism isolated from cases 1, 3 and 5 was a streptococcus.

Study of the Isolated Streptococci.

Gram positive, long chains, on solid media, greyish blue small non-coalescent colonies; while on liquid media, white, shiny, small hanging colonies, almost characteristic, kept hanging over all the length of the culture tube for many weeks.

Hæmolytic.	Lactose not fermented.
Litmus milk clotted.	Gelatin not liquefied.

Pathogenicity of the Streptococci.

Forty-eight-hours broth cultures were used for inoculation.

White rat, died 24 hours following ½ c.c. subcutaneously. The streptococcus was isolated from the rat's blood.

Tame rabbit, received 2 c.c. subcutaneously; died on the fourth day with septicæmic lesions; the streptococci were recovered from the rabbit's blood.

Guinea pig, received 2 c.c. subcutaneously; a slight local œdema of a tender nature—the œdema disappeared eight days following inoculation and no ill-effects were noticed for a month.

A young dog, cross-bred, received 5 c.c. subcutaneously at the inner side of the left thigh; severe painful local swelling which disappeared in ten days.

For agglutination, 48-hours-old cultures on solid media were used. The serum of the five cases, also the serum of a sixth case, a foal (control) was negative with both Bang and *Abortus equi*; the titre did not exceed 1/20 in all the six cases (control included).

With the isolated streptococci, the following was the result:—

No. of case.	Agglutination Titre.
1	1 : 80
2	1 : 30
3	1 : 60
4	1 : 20
5	1 : 50
6 (control)	1 : 10

Action of Antiseptics on the Isolated Streptococci.

Accurately measured sterile liquid media were cultivated for 24 hours; the antiseptic was then added, mixed and left for five minutes; a drop was then taken with a sterile pipette and allowed to spread on long rich slants of solid media, incubated for three days with the following result:—

Antiseptic.	Result.
Formalin 1 : 4,000 ...	No growth was obtained.
Potassium hydroxide 1 : 500	No growth.
Copper sulphate 2 per cent.	No growth.
Potassium permanganate 1/2,000	Growth of streptococci on 2nd day.

Antiseptic.	Result.
Boric acid 1/50 ...	Growth of streptococci on 2nd day.
Mercuric perchloride 1/10,000	,, ,, ,, ,, ,, ,,
Carbolic acid 1/1,000	,, ,, ,, ,, ,, ,,

B.—Normal Flora of Virgin Mares.

One hundred mares, never served, were examined; the exterior of the vulva was cleaned with alcohol, a sterile swab introduced well in, and rubbed against the mucous membrane. Culture media inoculated and incubated aerobically and anaerobically. Before anaerobic cultivation, the inoculated liquid media was subjected to 80° C. for 15 minutes.

The following organisms were isolated:—

Organism No. 1.

Gram positive staphylococci, occurring in irregular clusters. White, glistening, whole, raised, luxuriant growth on solid media; general turbidity and white sediment on liquid media. Gelatin stab was slowly liquefied. Litmus milk was coagulated. Acid produced in lactose, maltose, saccharose and manitol. Non-pathogenic to white rats on subcutaneous inoculation. A staphylococcus ALBUS was present in 70 cases.

Organism No. 2.

Gram positive, large packeted cocci. Gelatin not liquefied. On solid media, entire and spreading colonies; on liquid media, general turbidity, and greyish sediment. Sugars not fermented; acid formed in milk. Non-pathogenic to white rats. A non-pigmented SARCINA found in 60 cases.

Organism No. 3.

Motile large rods, rounded ends, sub-terminal sporulating and Gram positive. Wrinkled, dry, spreading growth on solid media; general turbidity on liquid media. Gelatin liquefied, liquefied quickly. Litmus milk turned alkaline. Acid in lactose, maltose, saccharose, but no change in dulcite. Non-pathogenic to white rats. A *B. subtilis* found in 40 cases.

Organism No. 4.

Packeted, large Gram positive cocci. Gelatin not liquefied; litmus milk not changed. Acid in lactose, maltose, glucose and saccharose; no change in dulcite. Non-pathogenic to white rats. Raised, shiny, luxuriant pale yellow growth on solid media; general turbidity and grey sediment on liquid media. A pigmented SARCINA isolated in 30 cases.

Organism No. 5.

Small, motile, Gram negative bacilli; non-sporulating. Gelatin not liquefied. Greyish blue, glistening, raised, fairly luxuriant growth on solid media, with general whitish turbidity on liquid media. Indol produced, acid and gas in lactose, glucose and dulcite, none in saccharose; litmus milk, turned red and clotted. Slight œdema at the seat of inoculation in white rats. *B. coli* isolated from 20 cases.

Organism No. 6.

Small Gram positive packeted cocci. Gelatin not liquefied. Deep brown yellow sediment and yellowish general turbidity in liquid media. Acid in milk, saccharose and maltose, but no change in lactose, glucose and dulcite. Non-pathogenic to white rats. A pigmented SARCINA found in 10 cases.

Organism No. 7.

Gram positive small cocci, occurring singly and in twos. Gelatin was not liquefied. Small separate circular grey colonies on solid media; faint turbidity on liquid media in three days. No change in milk, glucose and maltose. Non-pathogenic to white rats. A diplococcus found in five cases.

A.—SUMMARY (EQUINE ABORTION).

A streptococcus was isolated from three cases out of five, with a history of abortion or sterility.

B.—SUMMARY (NORMAL FLORA).

Ten out of 100 virgin mares contained no organisms.

Neither a streptococcus nor a *B. abortus equi* was isolated from virgin mares.

All the organisms isolated from virgin mares were non-pathogenic to white rats.

No heat-resisting anærobes were present in virgin mares.

REFERENCES.

Joachim Schmold examined 30 cases, normal mares, and reported:—

1. *Sarcina alba, aurantica* and *flava.*
2. *Staphylococcus albus* and *aureus.*
3. A diplococcus and a streptococcus in 50 per cent. of the cases.
4. An un-named cylindrical bacterium, egg-shaped bacteria and spore-forming bacteria.

However, Schmold did not definitely say whether his mares were virgins or not.

Guster examined 33 cases of sterile mares and reported:—

A *staphylococcus albus, citreus* and *aureus,* 16, 5, and 10 times respectively.

A diplo-streptococcus	17 times.
Sarcina alba	3 ,,
B. coli communis	8 ,,
Streptococcus pyogenes	9 ,,
B. subtilis	once
B. gracilis	once
Small and large cocci	3 times.
B. pyosepticus equi	twice

Ostertag and Hecker blamed streptococci for infectious abortion.

Carpano attributes equine abortion to both *Abortus equi* and streptococci.

Poymer attributes a diplococcus in equine abortion.

Bahm, Prgwsk and Halbustadter described very small bodies in the epithelial cells resembling trachoma bodies.

Pistons that Stick in Syringes.

Dr. Stephan Martonffy, of Szilágy-somlyó, recommends a method of loosening pistons that have stuck in record syringes.

In most cases the sticking of the piston is caused by the drying up of solutions containing albumin. It is a waste of time to boil the syringe or to warm it because boiling coagulates the albumin and it gets still more firm. It is futile also to attempt the use of acid, which coagulates the albumin and at the same time harms the syringe. The only practical method is to apply concentrated alkaline solutions. The alkali albuminate dissolves in the excess of potassium hydroxide and the sticking is stopped. The syringe is hung with cone down, or put in a tumbler, and the part above the piston is filled with a 10 to 20 per cent. solution of sodium hydroxide and left for a day or two. The caustic gradually gets filtered into the narrow space between the piston and the glass, and when the first drop of caustic appears on the bottom of the tumbler the piston is released and can be easily pulled. The method is successful also in cases of rust. The application of caustic in the described way is important because thus it reaches most easily the surface that sticks. Immersing the whole syringe in the caustic solution is not practical, because in this way the air bubbles that stick in the cone and between the piston and syringe wall prevent the caustic from reaching its destination.—*Journal of the American Medical Association.*

Review.

[**Black Disease (Infectious Necrotic Hepatitis) of Sheep in Australia.** Turner, A. W., d.v.sc. *Bulletin* No. 46, Council for Scientific and Industrial Research, Commonwealth of Australia.]

This report extends to 110 pages and is furnished with 50 illustrations and one map. It was submitted as a thesis to the Senate of the University of Melbourne for the degree of Doctor of Veterinary Science.

In a foreword, J. A. Gilruth records that the examiners expressed the opinion that it was "a remarkably fine piece of work of outstanding merit. The work reveals a profound knowledge of the subject in hand, its literature and technique, a critical sincerity combined with a breadth of outlook—an awareness of possibilities—which combination is the essential for any first-class research work."

The author has studied at the Pasteur Institute, Paris, and the Institute of Animal Pathology, Cambridge, and spent a short period in a braxy-infected area in Scotland. The term "Black Disease" is used almost exclusively in New South Wales and appears to refer to the colour of the dried skins taken from the carcasses. In 1929, the scientific and descriptive name—"Infectious Necrotic Hepatitis"—was officially adopted by the Victorian Department of Agriculture and the disease was gazetted as notifiable.

The report, however, does not indicate any legislative measures adopted for prevention, control and eradication.

In the opinion of the author, the disease is caused by the germination in necrotic liver areas of a race or variety of the *B. œdematiens,* Weinberg et Sequin, 1915, from which it differs in its larger size and its inability to ferment glycerine.

It is essentially a toxæmia following the absorption into the system of toxin elaborated during the growth of the specific bacillus in the liver areas.

The *B. œdematiens* was discovered by Novy in 1894. A certain percentage of the animals grazing on infected pastures are "carriers" and such may never develop the infection unless a *locus minoris resistentiæ* is established in a spore containing organ. The state of latency of the spores may persist for at least nine months. For the initiation of the localised liver infection, the necessary accessory factor appears in practice to be always the liver fluke in its wandering immature stage. The author definitely states his belief that black disease is merely a specific bacterial complication of early fascioliasis by the *B. œdematiens.*

The methods of control include active immunization against the specific bacillus by means of vaccination (*i.e.*, treatment of sheep against adult fluke and a campaign against the intermediate snail host by means of copper sulphate), and the adequate disposal of carcasses by cremation or deep burying.

It is pointed out that black disease differs from braxy in the following respects—there is no strict age incidence, except that sheep less than nine months apparently are not affected; it occurs in late summer and autumn, ceasing with winter; the primary lesion is in the liver; the condition is a toxæmia; it is associated with liver fluke and it occurs in New South Wales, Victoria, Tasmania and New Zealand. Bovines may contract a similar disease.

Abstracts.

[**Types of Tubercle Bacilli Occurring in the Sputum of Phthisical Persons.** Griffith, A. Stanley, *Journal of Pathology and Bacteriology,* October, 1930.]

This article is of great interest to the veterinary profession as the investigations show conclusive evidence that ulcerative pulmonary tuberculosis in the human subject, indistinguishable from that set up by the common human tubercle bacillus, may be caused by bovine tubercle bacilli, which have invaded the body through the mucous membrane of the alimentary canal. A review is made of all results to date, of which the following is an analysis:—

Origin.	No. of Cases.	Classification of Cultures. Human. Eugon.	Dys.	Bovine.	Mixed.
(*a*) Foreign countries	926	923	—	0	3
(*b*) England	327	321	3	3	—
(*c*) Scotland	468	449	1	17	1

The observations are based on the complete investigation of the 18 Scotch cases discharging bovine bacilli in the sputum, most of them being observed by Munro of the Fife and Kinross Sanatorium, and his work was independently confirmed by Griffith and Tulloch. The bovine bacilli were demonstrated repeatedly at intervals ranging from a few weeks to several years, and, except in one instance, no other type of tubercle bacillus was found, out of a total of 21 persons, who have been found in Great Britain, excreting bovine tubercle bacilli with the sputum. Careful inquiries were made into the family histories of the cases and no evidence was obtained of infection having been acquired from a previous human case, but in the majority there was clinical evidence of abnormal pains, or of enlarged cervical glands, preceding the onset of the pulmonary symptoms, or the drinking of considerable amounts of raw cows' milk. In autopsies of six cases of generalised tuberculosis, due to bovine tubercle bacilli, the *post-mortem* evidence definitely indicated in four that the alimentary canal was the portal of entry, while in the remaining two the evidence was inconclusive, though

In Norfolk, an outbreak due to an organism of the œdematiens group, in which 13 cattle died, is recorded by Bosworth and Jordan (*Vet. Journal,* Vol. 85 (1929), page 393). The organism responsible represented an extreme case of the "virulent" as opposed to the "toxigenic" type of *B. œdematiens* that is found in black disease.

In Great Britain, nodular hepatic necrosis in sheep is not common and, more often, necrotic lesions in the liver of sheep are associated with the use of carbon tetrachloride in the treatment of liver fluke.

The bulletin well repays close study as it is exceptionally well compiled and is furnished with a bibliography of 140 references.

It is lucidly written and is a valuable addition to the literature on ovine diseases and anærobic infections in animals.

W. J. Y.

favouring the alimentary rather than the respiratory tract. There is, however, definite evidence that bovine tubercle bacilli may infect the human subject through the respiratory passages.

The appendix gives clinical particulars and bacteriological details of the cases and the following are extracts from the histories of several:—

"Butcher's assistant"; "Habit of drinking unboiled cows' milk until very shortly before admission to the Infirmary"; "Employed by a farmer to deliver milk and had enlarged glands in the neck"; "Breast-fed, then given cows' milk"; "Worked on a farm for a year and drank a lot of milk"; "Fond of milk and drank considerable quantities"; "Given the milk *from one cow only*"; "Brought up on cows' milk, which was obtained mainly from one cow."

In the same issue of the *Journal* a "Case of Tuberculosis of the Stomach" is described by Cullinan, of St. Bartholomew's Hospital. The diagnosis of the case was not possible during life and a *post-mortem* definitely suggested that the primary lesion of tuberculosis was in the stomach, which is extremely rare, possibly owing to the gastric acidity. It seems unfortunate that the type of bacillus was not proved in this case.

F. A. D.

[**Gas-poisoning from the Point of View of an Army Veterinary Surgeon.** Lusztig, Dr. Alexander. *B.T.W.*, xxxxvi, No. 32, p. 513-516.]

Gas warfare will undoubtedly play a more important rôle in future war than during the last European conflict. The literature on the subject being rather scanty, the author felt himself justified in publishing a paper embodying both his own observations at the Italian front during the campaign, 1917-1918, and some recent acquisitions to the domain of military scientific knowledge in this connection.

Poisonous gases can be conveniently classified as:—

1.—*Suffocating gases,* to which group phosgene—carbonyl chlorid [$COCl_2$]—belongs.

2.—*Tear gas,* to which group chlorine and cyanide arsenical compounds belong.

3.—*Corrosive gases,* to which group dichlorethyl sulphid—mustard gas S (CH_2, Cl, CH_2)$_2$—belongs.

The author describes at some length the chemistry of poisonous gases and proceeds then to discuss the clinical aspect and prophylaxis of gas-poisoning in horses.

The gravity of symptoms observed depends upon two factors:—

1.—The quantity of gas inhaled, its concentration, and the length of time during which the animals were exposed to its action.

2.—Whether the animals immediately after inhaling the poisonous gas underwent some strenuous bodily exertion. The author did not observe instantaneous death following the inhalation of concentrated poison-gas.

Dyspnœa appears a few minutes after the explosion of a shell. The animals stand motionless, with their forelegs somewhat apart, and even lively thoroughbred horses shun every movement. The look and facial expression are anxious, the pupils are dilated, the animals are stupefied and apathetic, do not notice the approach of men, and hardly react to calls, blows and even the explosions of shells. As a sign of laryngeal œdema, the neck is somewhat outstretched. If made to move the animals exhibit an unsteady gait.

The seat of pathological changes, after poisoning with the phosgene-like gases, is in the lungs.

Of other symptoms one can mention superficial, laborious respiration, dilated nostrils, dry râles on auscultation, dry and painful coughing at each expiratory movement, masticatory movements and salivation, increased thirst, etc. If animals are made to move rapidly in mountainous districts pulmonary œdema intervenes, leading to death in from 12 to 24 hours.

The course depends on the degree of poisoning. In light cases animals recover in from 10 to 12 hours. If they survive during the first 24 hours they recover completely on the third or fourth day.

The prognosis in grave cases is mostly unfavourable. Out of 14 horses thus affected five (36 per cent.) died on the second day.

Post-mortem examination of animals, which succumbed subsequent to phosgene poisoning, reveals lesions characteristic of pulmonary œdema. In one case, in which death resulted in 30 minutes from dichlorethyl sulphid poisoning, the following changes were observed: corrosive lesions, as if produced by a strong acid or by burns, on nostrils, lips, nasal mucous membrane, and on eyes; subcutaneous connective tissue and the musculature, in points of contact with the gas [the animal had a thoracic wound] were stained yellow; similarly-coloured fluid—this being quite characteristic for this gas—was found in thoracic and abdominal cavities.

Discussing the prophylaxis, the author states that during the last war some attempts were made to construct gas-masks for horses in the Austro-Hungarian army. These consisted of two bags sewn from sacking and containing a thin layer of sod. hyposulphate on the bottom, or some other chlorine-binding salts. However, they were found to be impracticable, as the horses showed the signs of dyspnœa shortly after the masks were adjusted, the reason for that being that a thin layer of a chemical, while preventing the penetration of poison gas into the respiratory passages, interfered at the same time with breathing.

No specific therapy is necessary in light cases. In grave cases one might resort, with a considerable degree of success, to tracheotomy. The animals should be kept quiet, provided with plenty of fresh water, fed on sloppy concentrated food, etc. No doubt in future wars the A.V.C. will be provided with apparatus for the administration of oxygen.

H. F.

[**Clinical Manifestations of Early Pregnancy in Cattle and their use in Practice.** Euler, Dr. *B.T.W.*, xxxxvi No. 30, p. 477.]

This is a paper issued by the Institute of Animal Hygiene of the Prussian Agricultural Experimental and Research Laboratory at Loudsberg-on-Warthe.

The author discusses and reviews at some length 18 recent papers on the above subject, the list of which is appended to the article.

Basing his conclusions upon recent clinical experiences, the author states:—

1. The appearance of a sanguineo-mucous or purely sanguineous secretion from the vulva in one-five days—two days on the average—after œstrum is to be regarded as an indication that conception did not take place.

If the cow was served during the preceding period of "heat" one must come to the conclusion that fertilisation did not occur.

Non-appearance of pro-œstrum has no diagnostic value, as this condition might be easily overlooked.

2. For the diagnosis of gravidity—as in combating sterility—more use ought to be made of a suitable vaginal speculum for inspection of the vagina and cervix uteri, in which case, under certain circumstances, valuable facts might be brought to light.

3. The earliest date upon which a diagnosis of early pregnancy can be attempted is three weeks after service. At that time it is possible to ascertain whether the animal is gravid or has remained barren.

4. For safety's sake an examination at an early stage of gestation should precede that of the ovaries, for the purpose of ascertaining the gravid state

5. A carefully carried out palpation of the embryo (fœtus) does not seem to present any danger for the normal course of gestation. However, this method must be used only in cases when other diagnostic means—especially recognition of fœtal membranes—fail.

6. Hand-grip, according to Abelein, is especially valuable. The positive result of this method of examination is of diagnostic importance for differentiating gravidity from such pathological conditions of the uterus as pyo- and hydro-metra.

[Abelein recommends the gripping of the allantois momentarily through the uterine wall and letting it go; if the uterine wall resumes its former shape immediately, the uterus is gravid; if not, there is some pathological condition present.]

7. Thickening of uterine vessels (arteries), said to be characteristic by Dennhardt, is of no diagnostic importance for differentiating early gravidity from some pathological condition. Its importance lies in the fact that this symptom facilitates the determination of the age of pregnancy.

H. F.

Copper Content of Cows' Milk.

Milk produced by cows on a normal ration contains about 0·15 mgm. of copper per litre. There is no increase in the amount of copper found in the milk by adding sufficient copper sulphate to the rations to increase the amount of copper fivefold. Samples of milk collected from thirteen herds, located in different States, showed very slight variation in the amount of copper present. A limited number of analyses of goats' milk did not show less copper to be present than in cows' milk.—C. A. Elvehjem, H. Steenbock, and E. B. Hart (*J. Biolog. Chem.*, 83, 27; through *Biolog. Abstr.*, 1930, 4, 1052).—*Pharmaceutical Journal.*

In experimental investigational work on abortion disease at the Texas A. and M. College, it was found that of 48 cows in a herd receiving injections of live cultures of the *Br. abortus*, 32 required only one service for conception, ten required two services, two required five services, one required six services, and one required seven services.—*Veterinary Medicine.*

National Veterinary Medical Association of Great Britain and Ireland.

Quarterly Meeting of Council.

There was a good attendance at the first Quarterly Meeting of Council, N.V.M.A. for the year 1931, which was held at 10, Red Lion Square, W.C.1, on the afternoon of Tuesday, January 6th, with the past President, Mr. G. P. Male, of Reading, in the chair, in the absence, through ill-health, of the President, Professor James Macqueen.

Those present, in addition to the Chairman, were Professor J. B. Buxton, Mr. J. C. Coleman, Mr. H. J. Dawes (Hon. Secretary), Major G. W. Dunkin, Mr. F. L. Gooch, Captain O. V. Gunning, Principal F. T. G. Hobday, Mr. Howel V. Hughes, Mr. W. J. Ironside, Mr. G. T. Matthews, Mr. J. W. McIntosh, Major-General Sir John Moore, Mr. W. Nairn, Major R. H. H. Over, Major D. S. Rabagliati, Captain J. R. Rider, Mr. H. P. Standley, Captain W. K. Townson, Dr. A. W. Whitehouse, Colonel W. A. Wood, Captain W. G. Wragg (Hon. Treasurer), Major W. N. Wright and Professor G. H. Wooldridge, together with Mr. C. O. Langley (Solicitor) and Mr. F. Knight (Secretary).

The President's Illness.

At the commencement of the proceedings, Mr. G. P. Male (past President) said that, in the regretted absence of the President, Professor James Macqueen, by the Articles of Association he was in duty bound to take the Chair. He should apologise to them for doing that before they started, and he hoped they would make due allowance for his shortcomings.

He thought that, first of all, they would probably like a letter of sympathy to go to Professor Macqueen in his illness. (Hear, hear.)

The Hon. Secretary moved accordingly.

Professor Wooldridge, in seconding, observed that he would like to say that he had had a talk with Professor Macqueen that morning on the telephone. The President sounded remarkably cheerful, and said he was sorry that he would not be able to be present to carry on their work that afternoon, but that he felt sure it would go through satisfactorily. He (Professor Wooldridge) gathered the impression, from his voice and his jocular tones, that the President was really better than had been anticipated. (Hear, hear.)

The Chairman said he was sure they were all very glad to hear that reassuring news—(Applause)—and he put it to the meeting that they send a letter expressing their sympathy with Professor Macqueen in his illness and their sincere wishes for his speedy recovery.

The proposition was carried with deep sincerity.

The minutes of the Autumn meeting of Council, which had received publication in the *Veterinary Record*, were taken as read, approved, and signed.

Arising out of them, the Secretary read a letter from Sir W. Phené Neal expressing his sincere thanks to the Council of the Association for their congratulations upon the knighthood recently conferred upon him by His Majesty and upon his election to the high office of Lord Mayor of London.

The Council resolved itself into Committee to consider a communication received from a member relative to the appointment of Chief Veterinary Officer to his City Corporation.

Upon the resumption of open meeting, the Secretary announced the receipt of apologies for absence from the following :—

The President (Professor Macqueen), Mr. H. Bell, Dr. O. Charnock Bradley, Mr. David Brown, Mr. W. H. Brooke, Mr. J. Clarkson, Mr. F. A. Davidson, Mr. J. Holroyd, Mr. P. J. Howard, Mr. Richard Hughes, Mr. T. Eaton Jones, Major H. Kirk, Mr. S. J. Motton, Mr. R. Barons Nelder, Major Harry Peele, Mr. W. Tweed, Mr. J. Willett, Mr. J. H. Wynne and Lieut.-Colonel T. Dunlop Young.

Resignation of Professor James Macqueen from the Presidency: Recommendation as to Succession.

The Secretary read the following letter, dated November 14th, which had been received from Professor James Macqueen :—

252, Camden Road,
N.W.1.
November 14th, 1930.

Dear Mr. Knight,

To-day, I have informed Mr. Dawes that, after full consideration, I have definitely decided to relinquish the position of President of the N.V.M.A. at the end of this year or sooner if arrangements can be made to appoint a successor before then.

I am sorry that I see no prospect of being able to go out of doors for another week or longer.

Yours faithfully,
J. Macqueen.

The Secretary read his acknowledgment, and a further communication from the President, in which the latter stated that, at the rate of progress he was then making (November 17th), he would not be able to attend any meetings for the remainder of the year.

The Chairman said that he was sure the members would all be very sorry indeed to hear Professor Macqueen's letter read, and especially to know the reason for it. What was their desire in the matter? Did they wish to accept Professor Macqueen's resignation, or to ask him to reconsider it?

Sir John Moore observed that he would like to propose that they ask Professor Macqueen to reconsider his decision, and that he should continue as President. They had provision under the Articles of Association for the past President to take his place when necessary. He thought that before the close of the Presidential year Professor Macqueen might be quite in a position to take over his duties again in some shape or form. In any case, he felt that it would be a pity to have him dissociate himself from the activities of the Association, and that it would be a very nice act, on their part, if they asked him to continue.

The Chairman remarked that he, with every member of Council, would have been delighted if Professor Macqueen could have felt himself able to continue in the Presidency. He had already asked him, however, to reconsider the matter, and he gathered from him that he would very much like to be relieved of his responsibilities.

The Hon. Secretary remarked that he, too, had written to Professor Macqueen and asked him to continue, but the President had replied that his decision was final.

Mr. McIntosh stated that while he sympathised heartily with all that Sir John Moore had said with regard to Professor Macqueen, he was not sure that they would be doing the right thing in asking him to continue, in view of the illness through which he was passing at the present time. The post of President carried with it a great deal of responsibility, and he thought that Professor Macqueen felt that he was not able to give to the affairs of the "National" the attention which he ought, as President. He (Mr. McIntosh) thought that perhaps for that reason it would be better, in his own interests, if Professor Macqueen were relieved of his responsibilities. They all regretted very much the cause which had forced his resignation upon him, but he thought it would be wise, in the interests of the Association and in the interests of Professor Macqueen himself, if they accepted his resignation. He made no motion in the matter, but he thought they should consider whether it would be best, in his own interests, to relieve him of any anxiety in regard to the "National."

Major Over spoke of the earnest and serious manner in which Professor Macqueen viewed his responsibilities as President of the Association and carried out the duties of his office, and expressed the opinion that, in his present state of health, they should seek to relieve him of all responsibility. Under the circumstances, he proposed, in terms of the deepest regret, that they accept his resignation from the position of President of the Association.

The Hon. Secretary said that, knowing what he did of those circumstances, he seconded Major Over's proposition, also with the deepest regret.

The Chairman : "I think that Sir John Moore's resolution was not seconded."

The Council now accepted Professor Macqueen's resignation as President with great regret and with warmest thanks for his services to the Association, at the same time expressing their earnest hope for his speedy recovery and their wish that he might thereby be enabled to attend the Annual Congress of the Association.

The Chairman observed that, arising out of this resolution, was the appointment of a successor to Professor Macqueen, and he understood that a special meeting would have to be called for the purpose.

The Solicitor : "Not necessarily, Sir. You, as past President, can carry on.

The Chairman said that he thought it would be much more satisfactory if a President were elected.

The Hon. Secretary proposed that Mr. Male be invited to continue, as past President, to take the Chair at the meetings of Council and to act as President. By that means the holding of an Extraordinary General Meeting could be dispensed with.

The Chairman expressed his sincere thanks for that renewal of their confidence. He did feel, however, that it was a very great honour to be their President; there was a very large number of members of that Association and he thought it should be the ambition of every member to be President, and that to occupy the position for more than one year was not fair to other members. He thought there would be no difficulty about holding an Extraordinary General Meeting. He hoped that one of the four Vice-presidents would accept the office.

Mr. McIntosh said that he heartily agreed with Mr.

Male's proposal. He thought that, even if it were possible for Mr. Male, as past President, to carry on, they ought to proceed to appoint a President. As he had said before, the duties were very considerable, and he felt that every member should have an opportunity of going through the Chair. One year was enough for any man, and it was the highest honour the Association could bestow. If it were possible, they should make a recommendation at that meeting, and then an Extraordinary General Meeting should be called for the purpose of election.

In order to test the feeling of the meeting, he would put a name before them. He had not consulted the individual, but his name was one which he had the greatest confidence in putting before the Council for their approval, if he would accept nomination. He had much pleasure in suggesting the name of Lieut.-Colonel P. J. Simpson—(Applause)—and he was quite sure that Colonel Simpson would carry out the duties of President with credit to himself and honour to the Association and to the profession. (Hear, hear.) If he could only see his way to step into the breach and accept the responsibilities of the chair, he was sure they would all feel very grateful to him. (Loud applause.)

The Chairman: "I am sure you would all wish to second that." (Hear, hear.) "Nobody could better fill the Chair both literally and otherwise." (Laughter and applause.)

The motion "That Lieut.-Colonel P. J. Simpson be recommended for election as President of the Association at an Extraordinary General Meeting to be called," was carried with unanimity and enthusiasm.

Lieut.-Colonel Simpson returned thanks for the honour of his recommendation as President.

On the proposition of Professor Wooldridge, seconded by Major Dunkin, it was agreed to hold the Extraordinary General Meeting immediately preceding the next Quarterly Meeting of Council.

Correspondence.

(1) From the Hon. Secretary of the Central Division, N.V.M.A., conveying all good wishes from the Society to the Association for the coming year.

The Chairman commented that it was most kind of the "Central" to send that message; they were not often greeted with those most hearty good wishes from Divisions, and he was sure it would be the desire of the Council that the "Central" should be thanked and their good wishes reciprocated. (Hear, hear.)

(2) From the Hon. Secretary of the Indian Veterinary Service Association, Calcutta, applying for affiliation of his Association to the N.V.M.A., and forwarding affiliation fee and copy of the rules.

The Secretary having informed the Council that membership of the I.V.S.A. was limited to Fellows and Members, R.C.V.S., the President said that it was most pleasing to welcome another Association to the National. (Applause.) The N.V.M.A. was gradually extending, and this was the first application from a veterinary association in India. (Applause.)

Replying to Professor Wooldridge, the Solicitor said that these Colonial Divisions were not affiliated to any Branch; they were affiliated to the Association.

The Chairman: I take it that it is your wish that the Secretary should write a suitable letter giving a very hearty welcome to the new Division. (Applause.)

(3) From the Secretary of the Royal Sanitary Institute, inviting the appointment of delegates from the Association to the 42nd Congress of the Institute, to be held at Glasgow from July 4th-11th, 1931.

The Council decided to send a representative and appointed the President or his nominee.

(4) From the Hon. Secretaries of the Royal Institute of Public Health, inviting the appointment of delegates from the Association to the next annual Congress of the Royal Institute of Public Health, to be held in the City of Frankfurt-on-Main from May 19th-24th, 1931.

The Secretary having informed the Council that there was no Veterinary Section at this Congress, it was agreed, on the proposition of Mr. McIntosh, seconded by Mr. Nairn, that no delegates be sent.

Major Dunkin observed that he hoped that decision was not going to create a precedent; it did not follow that because there was no Veterinary Section at a Congress the veterinary profession would not be interested in the proceedings.

(5) From the Secretary, National Association for the Prevention of Tuberculosis, inviting the appointment of representatives to the Seventeenth Annual Conference of the Association; to be held at Margate from June 25th-27th, 1931.

The Secretary informed the Council that the Conference would be devoted to a discussion on the protection of the child from tuberculosis.

The Council agreed that delegates be sent and appointed the Chairman and Major Rabagliati, it being understood, also, that Professor Buxton would be present.

Major Dunkin enquired if members of the Association, generally, were aware that certain of their expenses would be paid if they acted in the capacity of representatives of the Association. If they did, to what extent were they allowed expenses? There had been occasions in the past when either no expenses had been claimed—which he thought was an unfortunate precedent—and there had been other occasions when expenses had been a little high, and that was equally unfortunate. Might not that Council suggest that expenses should be allowed up to a certain figure?

After some discussion, it was agreed to determine the amount of expenses allowed as each case arose, and, in connection with the two conferences to which delegates had been appointed that day, to grant first-class railway fare and 25s. per day during absence from home.

N.V.M.A. Membership.

The Secretary reported that, with regard to the membership of the Association, the number of members, at December 31st, 1930, was 1,644.

He had received the following resignations from membership, with effect from December 31st, 1930:—Messrs. J. Aitken, J. McClure Barry, Arthur Broad, C. Burston, M. Clarkson, W. Dotchin, A. K. Hart, H. H. Hide, F. Kerr, J. Matthews, S. M. Sarwar, E. Lionel Stroud, and Walter Western.

The Secretary stated that most of these gentlemen had retired from practice, and that was the reason that they desired to resign from the Association. All had been asked to reconsider their decision, but had been unable to do so.

On the proposition of Mr. McIntosh, seconded by Major Dunkin, these resignations were accepted, with regret.

Proceeding, the Secretary said that there was a list of members to be struck off the Register at the end of last year—members who had not paid their membership subscription for two years—under Article 30. The list was as follows:—Messrs. J. M. Crowe, G. K. Fenn-Smith, H. W. Holland, C. P. Johnson, J. A. Maybin, A. V. Meeke, W. A. R. Ogilvie, F. O'Leary, W. Hogarth Scott, C. Secker Smith, D. Stewart, O. Lloyd Williams, A. A. Wilson, and Major K. S. Simpson.

The Finance Committee, continued the Secretary, were taking steps to secure payment of the subscription arrears in these cases.

All casualties affecting the membership of the Association should in future appear in the minutes of the Council Meeting, and it was at the request of the Auditors that that report was being made.

The Solicitor said that those gentlemen automatically ceased to be members, and corroborated Sir John Moore's assertion that payment of their subscriptions would be enforced, if necessary, by action in Court of Law.

The following gentlemen, having paid their subscriptions and filled in forms of nomination, were unanimously elected members of the Association, on the proposition of Major Rabagliati, seconded by Captain Wragg:—

Messrs. E. Ackroyd, J. Brand, G. H. Broad, W. S. Cartwright, P. J. Cautley, S. V. Collard, G. D. Coward, C. Crompton, J. W. Emslie, J. M. Fletcher, P. Harnett, P. J. L. Kelland, Lieutenant R. K. Kent, Messrs. H. P. Lightfoot, J. D. Macbeth, J. McCutcheon, S. E. Morton, A. Parry, J. Plenderleith, Major F. R. Roche-Kelly, Major W. H. Simpson, and Messrs. G. A. Tomlin and R. A. Willett.

Commenting on these elections, the Chairman remarked that that was a very good list of names, and they were very pleased to elect those gentlemen to membership. (Applause.)

Obituary.—The Secretary reported, with regret, the death, on January 2nd, 1930, of Major R. Porteous, a member of the Association.

Reception of Reports.

A.—Regarding Veterinary Advisory Officers.

Mr. J. W. McIntosh (Chairman of the Committee appointed to consider the duties of Veterinary Advisory Officers) read the following report:—

A deputation consisting of Mr. J. M. McIntosh, Mr. G. P. Male and Mr. H. L. Roberts met officials of the Ministry of Agriculture (Mr. H. E. Dale, Dr. W. H. Andrews and Mr. Richardson) at 10, Whitehall Place, S.W.1, on Thursday, November 6th, 1930, regarding the duties of Veterinary Advisory Officers.

The deputation was sympathetically received and each member spoke in amplification of the views embodied in the letter which the Association had addressed to the Ministry of July 23rd, 1930.

After the matter had been discussed at length, Mr. Dale gave an assurance that very careful consideration would be given to everything the deputation had said, and it was understood that he might wish to see the deputation again at a later date.

It has now been proposed by the Ministry that a further meeting should take place on January 16th, and a final report will be made to the Council in due course.

The Chairman observed that he thought that that report required no resolution: it was an *interim* report, and the Committee had not finished their labours yet.

B.—Regarding Appointment of Veterinary Surgeons to the Permanent Staff of the Ministry of Health.

This report was read by the Secretary, as follows:—

The deputation appointed to approach the Minister of Health with the object of securing the appointment of a member of the veterinary profession to the permanent staff of the Ministry of Health met at 2, Verulam Buildings, Gray's Inn, W.C.1, on Thursday, October 23rd, 1930, with the President in the chair.

There were also present the Hon. Secretary (Mr. Dawes), Major-General Sir John Moore, and Colonel Dunlop Young.

It was reported that a reply had been received from Lieut.-Colonel F. E. Fremantle, M.P., agreeing to introduce the deputation if suitable arrangements could be made with the Minister of Health.

The Secretary submitted draft of a suggested letter to the Minister.

After discussion the deputation decided to recommend to the Council that further action be postponed until it was known what recommendations have been made by the Departmental Committee recently set up by the Minister of Health "to inquire into and make recommendations on the qualifications, recruitment, training and promotion of local government officers." It was understood that the Committee's terms of reference would include veterinary officers in the service of local authorities and that the Association had asked to be given an opportunity to offer evidence.

Major Rabagliati observed that he would like to say, in connection with that, that the evidence which the Society of Medical Officers of Health proposed to give at that enquiry would be considered in the course of a few days. One of the points in that evidence was that at the Ministry of Health there should be one or more veterinary officers to deal with veterinary questions arising at the Ministry.

Standing Committees, N.V.M.A.

Finance and General Purposes Committee.

Lieut.-Colonel Simpson (Chairman) read and moved the reception of the following report of this Committee:—

The Finance and General Purposes Committee has held two meetings during the past quarter, and Lieut.-Colonel P. J. Simpson has been re-appointed Chairman.

As desired by the Council, consideration has been given to the following resolution:—

> "That the Finance Committee be asked to consider the question of a reduced membership subscription for partners (providing one partner is a full member), assistants, and new graduates; such members not to receive the *Veterinary Record*."

The Committee unanimously resolved to recommend that no reduction in the membership subscription should be made in the case of partners, assistants, and new graduates.

In view of the receipt from time to time of applications for permission to use the Committee Room at 2, Verulam Buildings, the Committee recommends that this room be let to members of the Association and Divisions, for the purpose of meetings, at a charge of 10s. 6d. from 2 p.m. to 8 p.m., the charge to be increased to 15s. after 8 p.m. These charges to apply throughout the year; all meetings to end by 10 p.m.

It was decided to suggest that the following Resolution passed by the Council on April 6th, 1927:—

> (*a*) That the expense of holding Branch Meetings be paid up to the sum of £5 per meeting, special application to be made for an increased grant in special cases;
>
> (*b*) That the items of expense be as follows: The cost of printing and circulating notices of meetings, secretarial expenses, hire of room and reporting fees; also such special items as may be considered under (*a*) above;

should be amended to read as follows:—

(*a*) That the expense of holding Branch Meetings be paid up to the sum of £5 per annum, irrespective of the number of meetings held.

(*b*) That the items of expense be as follows: The cost of printing and circulating notices of meetings, secretarial expenses, hire of room, and reporting fees.

(*c*) Reference to be made to the Finance Committee before a Branch incurs any expenditure in excess of the aforesaid £5 per annum which it proposes to reclaim from the Association.

The Committee recommends that the arrangement under which the Association retains the services of Messrs. Fowler, Langley and Wright as legal advisers, be continued for the year 1931 on the same terms as for last year, namely, 30 guineas and the usual expenses.

In consequence of the decision of H.M. Treasury to redeem on January 15th, 1931, the 4 per cent. (Tax compounded) War Stock, 1929-42, the Committee has disposed of the £1,000 worth of this stock held by the Association and re-invested these funds in 3 per cent. Local Loans.

A Sub-committee has considered the question of the appointment of a Junior Clerk. Acting on their recommendation, the Committee has engaged Mr. George Sykes as Junior Clerk with effect from November 19th, 1930, at a commencing salary of 15s. a week.

The finances of the Association for the months of October and November, 1930, will be dealt with by the Hon. Treasurer in his report.

The Hon. Treasurer (Captain W. G. Wragg) now presented the report referred to, which showed that at November 3rd, 1930, there was a balance at bank of £399 15s. 5d. Since that date liabilities had been met amounting to £391 0s. 3d. and the balance at bank on December 31st was approximately £364. He thought it would be agreed that the figures presented showed a very satisfactory financial position. (Applause.)

The Chairman: "We are one of the few institutions that can show a favourable balance sheet this year; that, at all events, is very cheering." (Hear, hear.)

The report was adopted, on the motion of Professor Wooldridge, seconded by Major Over.

Editorial Committee.

The following report of this committee was read by its Chairman (Sir John Moore), who moved its reception and adoption:—

Sir John Moore has presided over the meetings of this Committee during the past quarter, having been appointed Chairman in succession to Major Dunkin.

Throughout this period the *Veterinary Record* has been enlarged to 40 pages almost weekly in consequence of the decision of the Committee to present abridged papers of the International Veterinary Congress as a regular feature without restricting the space devoted to other material. In connection with the publication of these abridged papers, the Committee has received valuable assistance from its collaborators and abstractors.

The Committee has been glad to welcome Mr. Eustace Montgomery as a co-opted member and to accept with gratitude his offer to be responsible for the preparation of reviews of Colonial Veterinary Service reports, which it has been decided to insert, together with municipal and other reports, as a regular weekly feature in future.

It is gratifying to be able to report that, despite the prevalent depression in industry, there is every prospect that the New Year, at which time the majority of contracts terminate, will witness little, if any, diminution in the amount of advertisement space taken by the firms who use the *Record* as an advertising medium. For this continuance of support at so difficult a time the Editorial Committee is exceedingly grateful to *Record* advertisers.

The Committee has been happy to devote space during the past quarter to announcements calculated to bring the profession's benevolent institutions to the notice of readers with a view to increasing support.

The motion for the reception and adoption of the report was seconded by Lieut.-Colonel Simpson, who asked to be allowed, as Hon. Secretary of the Victoria Benevolent Fund, to express his deep appreciation and thanks to the Editorial Committee for all that they had done in trying to increase the amount of the funds at the disposal of the "Victoria."

Sir John Moore, on behalf of the Editorial Committee, thanked Colonel Simpson very heartily for his remarks.

Notice of Motion.—Major Dunkin: "May I formally move: 'That this Council instructs the Secretary to table for discussion at the next meeting of Council the question of the reorganisation of the editorial staff of the *Veterinary Record*'"?

The President having invited discussion on the Editorial Committee's report, Mr. Coleman said that it had occurred to him whether any good purpose was being served by the publication of the short précis of International Veterinary Congress papers. His impression was that a great deal more valuable information came out in the discussion on those papers, which discussions had not been published.

Professor Wooldridge expressed strong disagreement with Mr. Coleman's suggestion that the publication of those abridged papers served no useful purpose. He constantly had repeated to him statements based on the recent abstracts that had been published in the *Veterinary Record*, and he was well aware that a great deal of good had resulted from bringing those papers before the recollection of some members of the Congress who had not had time to read them all in full, and to the notice of other members of the profession who were not members of the Congress. He thought that the publication of those abridged papers should be continued until the papers were exhausted.

Sir John Moore observed that, with regard to the publication of the discussions, as mentioned by Mr. Coleman, he thought that they had not yet been made public.

The report was adopted without further discussion.

Appointments Committee.

Professor Buxton (Chairman) read the report of this Committee as follows, and moved its reception and adoption:—

A meeting of the Appointments Committee was held at 2 Verulam Buildings, Gray's Inn, W.C.1, on Monday, January 5th, 1931.

Professor J. B. Buxton was appointed Chairman of the Committee for the ensuing year.

The minutes of the previous meeting, having been published in the *Veterinary Record*, were taken as read and signed as correct.

A communication was received from a member in Australia conveying the latest information concerning the steps which are being taken to secure the reinstatement of Major Murray-Jones as Chief Veterinary Officer, Western Australia.

It was reported that, at the urgent request of the Veterinary Medical Association of Ireland, the President had authorised the despatch to the Minister of Agriculture, Dublin, of a letter in support of the representations made by that Association to obtain better salaries and conditions of service for Veterinary Officers of the Irish Free State Department of Agriculture. The letter in question was read, as was also the reply received from the Minister stating that the matter would receive his attention, and a letter from the Veterinary Medical Association of Ireland expressing satisfaction with the terms of the N.V.M.A. representation.

The Committee confirmed the action taken.

Letters were read from two members of the Association relative to the proposed appointment by the Derbyshire County Council of two whole-time veterinary officers. Correspondence with the President of the Derbyshire Division of the Association was also considered.

It was decided to forward to the Clerk of the Derbyshire County Council a copy of the Association's scale of salaries for whole-time veterinary officers, and to acquaint him with the Association's views as to the undesirability, in the first place, of the appointment by his local authority of two veterinary officers of equal standing, and the advantages of the appointment, in lieu thereof, of a Chief Veterinary Officer and one Assistant.

The motion for the reception and adoption of the report having been seconded by Major Over, Major Rabagliati observed that he was not present at the meeting to which the report refe.-ed, and he desired to know if there was no communication from the Derbyshire County Council saying that those appointments were being proceeded with, or had they been temporarily suspended?

Professor Buxton replied that he understood, from the information before the Committee, that there was a slight lull at the moment

Captain O. V. Gunning said that he believed the matter was to come up at the next meeting of the Derbyshire County Council which, he thought, took place at the end of the month. He understood that there was a proposal on foot by the Diseases of Animals Committee, who were opposed to the Public Health Committee in this matter, to rescind the decision, arrived at at the last meeting of the Council, to appoint two whole-time veterinary officers.

The Chairman observed that it would do no harm to send a copy of the Association's scale of salaries for their information.

Captain Gunning expressed the opinion that it might be more acceptable to the Derbyshire Division of the N.V.M.A. if the Association recommended the County Council to appoint a Chief Veterinary Officer and omit mention of the Assistant. At the present time the work was being done by thirteen part-time veterinary officers, and if a whole-time assistant were appointed the work would be taken out of the hands of the part-time men.

The Chairman said that they would notice that the recommendation in the report was that the letter to the Clerk of the County Council should acquaint him with the Association's views as to the undesirability, in the first place, of the appointment by his local authority of two veterinary officers of equal standing, and the advantages of the appointment, in lieu thereof, of a Chief Veterinary Officer and one Assistant. But the Committee did not discuss the merits or otherwise of the appointment of an Assistant; it was the appointment of two officers of equal standing that the Committee did not like, because that would be very unsatisfactory in practice.

Professor Buxton said that some members of the Committee thought there would be a little difficulty in telling the County Council how they should run their business.

Dr. Whitehouse suggested that it would be better to say: "Appoint a Chief Veterinary Officer, under whom the necessary work should be distributed."

Professor Wooldridge thought that Captain Gunning's idea would come far better from the local Division than from the Association.

Captain Gunning, when invited to make a proposition, replied that if it were the opinion of the meeting that the matter had best be left as it was, he could not make one.

Professor Buxton said that, so far as the Committee knew, the County Council had been considering the appointment of two veterinary officers; that was all that was known publicly. He thought his remarks still held good—that it was rather telling them how they should carry out their work as a Council.

Major Over said that he was in agreement with Dr. Whitehouse, that the Council should recommend the County Council to appoint a Chief Veterinary Officer, cut the Assistant Veterinary Officer out, and distribute the work amongst the part-time inspectors under the Chief Veterinary Officer's supervision. In the one case they would be recommending two appointments, and in the other that they should distribute the work according to their own wishes.

Captain Gunning: I will propose an amendment, in accordance with the wording of Dr. Whitehouse—"That the last paragraph in the report read '. . . . and to acquaint him with the Association's views as to the desirability of the appointment of a Chief Veterinary Officer, under whom the necessary work should be distributed.'"

Major Over seconded.

Professor Buxton said that he did not think there would be any opposition to that suggestion, or that there was any point in putting it to the vote.

Mr. Gooch felt, however, that it would be much better to leave the report as it stood and let the local Division approach the County Council with their views as to the appointment of the whole-time men.

Lieut.-Colonel Simpson said that, if the Council disagreed with the report of a Committee, it had to be referred back to the Committee, together with the Council's reasons for the reference back.

Professor Buxton observed that rather than have the report sent back for reconsideration he would accept the amendment on behalf of his committee. The Chairman now put the amendment to the meeting, when it was carried by seven votes to six.

The report of the Committee was now received and adopted, as amended.

Veterinary Officers' and Public Health Committee.

The report of this Committee was read by the Secretary, as follows:—

A meeting of the Veterinary Officers' and Public Health Committee was held at the Offices of the Association on Tuesday, January 6th, 1931, with Mr. G. P. Male in the Chair.

The minutes of the last meeting were read and signed as correct.

The Committee resumed its consideration of the letter from the National Association of Grade "A" Milk Producers' suggesting that a uniform scale of fees should be fixed for the veterinary inspection of cattle of Grade "A" milk producers, and that these should be as low as possible in order to encourage the small producer. A letter on the same question from Mr. W. T. Olver was also considered.

A report was received of the progress made by the sub-committee appointed to bring the claims of the profession before the Departmental Committee set up by the Minister of Health to inquire into and make recommendations on the qualifications, recruitment, training and promotion of Local Government Officers.

It was agreed to hold a special meeting of the full Committee on January 29th, at 2.30 p.m. to consider the full statement of evidence.

As requested by the Council, the Committee considered whether the Association should be represented at the International Dairy Congress, 1931, Copenhagen.

It was resolved to recommend that the Association should become a member of the Congress, the question of the appointment of a delegate to be considered further in April in the event of the receipt of an official invitation.

As desired by the Council, the Committee considered the detailing of the bacterial count standard for the three grades of milk recommended by the Association to take the place of the grades specified in the Milk (Special Designations) Orders, 1923.

It was resolved to recommend :—

(*a*) That there should be a single standard of cleanliness, *i.e.*, on a sample being taken at any time before delivery to the consumer the milk should be found to contain :—

(1) Not more than 50,000 bacteria per cubic centimetre ; and

(2) No coliform bacillus in one-hundredth of a cubic centimetre.

(*b*) That certified and graded milks shall not at any stage be treated by heat.

The Committee had before them the draft scheme for the Eradication of Bovine Tuberculosis for England and Wales. This scheme was considered in the light of various views put forward by the members of the Committee, and it is proposed to place the completed scheme before the Council at its next meeting.

The Chairman proposed that the report be received and adopted. Mr. Nairn seconded.

After discussion, it was decided to delete paragraph (*b*).

The Chairman remarked that the Committee had worked very hard at the Bovine Tuberculosis Eradication Scheme, and had got on with it quite well. That day they had had the benefit of some of the views of the members of the Scottish Branch, which were very helpful.

The question arose as to what should be done with the resolution with regard to the bacterial count standard for the three grades of milk recommended by the Association. He took it that it should be forwarded to the Minister of Health. The Council concurred, and the report was received and adopted.

Joint Meeting of Veterinary Officers' and Public Health and Parliamentary Committees.

The Secretary read the following report :—

A joint meeting of the Veterinary Officers' and Public Health and Parliamentary Committees was held at the offices of the Association on Tuesday, January 6th, Mr. J. C. Coleman being in the Chair.

The minutes of the previous meeting were read and signed as correct.

Correspondence was submitted which had passed between the Secretary and a member, concerning whether part-time veterinary inspectors displaced by the Local Government (Scotland) Act would be compensated for loss of office. It was understood that this member and the other veterinary inspectors affected proposed to defer lodging their claims for compensation until May next, and that a further report would be made in due course.

The Committee also heard correspondence from two members enquiring whether a part-time veterinary inspector suffering depreciation of salary in consequence of the Act would be compensated therefor. After hearing the views of the Association's solicitor on this point the Committee decided :—

(*a*) To advise the members concerned to make an official application for compensation and report the result.

(*b*) That a letter be sent to the Chief Veterinary Officer for ———— seeking information as to the attitude and action of the County Council in this connection.

The report was received and adopted, on the motion of Mr. Coleman, seconded by Mr. Nairn.

Parliamentary Committee.

Mr. Coleman (Chairman) read, and moved the reception of, the following report of this Committee :—

A meeting of the Parliamentary Committee was held at the offices of the Association on Monday, January 5th, 1931, when Mr. J. C. Coleman was re-appointed Chairman of the Committee for the ensuing year.

The minutes of the previous meeting, having been published in the *Veterinary Record*, were taken as read and signed as correct.

A letter was read from the R.S.P.C.A., asking for the views of the Association on the following motion which had been brought forward at their last Annual Meeting and subsequently referred to their Humane Slaughter Committee for the guidance of experts to be obtained :—

> " That the administration of prussic acid to animals, although the said drug is regrettably still countenanced by the law, be definitely banned by the R.S.P.C.A., and its claim as a humane destructive agent be emphatically denied. "

It was decided to reply that, in the opinion of the Committee, administered in the proper manner by skilled persons, prussic acid produces death as expeditiously and humanely as possible.

At the request of the Council, careful consideration was given to the following resolution of the Mid-West and South Wales Division :—

> " That this Association is of opinion that the time has arrived when legislative measures should be introduced making it illegal for any person or persons other than duly qualified veterinary surgeons to administer active biological products to animals. "

It was decided to recommend that a reply be sent to the Mid-West and South Wales Division expressing sympathy with the resolution and stating that the Ministry of Agriculture is being approached on the subject.

In this connection, it was agreed to recommend that a modified resolution in the following terms be transmitted to the Ministry of Agriculture : –

> " In the opinion of this Association, it is highly desirable in the public interest that :—
>
> (1) The importation into Great Britain of biological products for use in animals should be controlled.
>
> (2) The substance and quality of all biological products for use in animals should be clearly stated on each package.
>
> (3) Steps should be taken to ensure that the substance and quality are as stated. "

The Committee had before them a letter from a member drawing attention to the fact that large quantities of swine erysipelas serum are obtainable by pig owners without reference to a veterinary surgeon either as to diagnosis of the disease or use of the serum, the serum being injected by the owner or more generally by the attendant.

After some discussion it was resolved that it be left to the Chairman, Professor Buxton and the Secretary to draft a suitable letter for transmission to the Ministry of Agriculture.

A print of the Protection of Dogs Bill, 1930, was submitted, and the Committee re-affirmed its previous recommendation, namely, that the Association should co-operate with the Royal College of Veterinary Surgeons in opposing this Bill.

A copy of the Slaughter of Animals Bill, 1930, was considered, together with a letter from a member objecting to Clause 4 which provides for statutory authority to enter slaughter-houses and knackers yards being given to, amongst others, " officers of any society or institution for the protection of animals authorised by the Ministry of Health." Mr. J. R. Hayhurst attended the meeting in connection with this matter.

After discussion, it was decided to recommend the deletion from Clause 4 of this Bill of the words " and the officers of any society or institution for the protection of animals authorised by the Minister of Health," with a view to bringing the Bill into conformity with the Scottish (Slaughter of Animals) Act, which provides for the entry

to slaughter-house premises by " any constable or other person authorised in writing by the local authority."

It was further decided to recommend that a copy of this recommendation be sent to Mr. Hayhurst and that he be asked to forward it to the proper quarter.

The following report of a meeting of the *Mining Sub-committee* held on Monday, January 5th, 1931, was received and adopted :—

A meeting of the Mining Sub-committee was held at the Offices of the Association on Monday, January 5th, 1931.

In the absence of Mr. J. Clarkson, Captain J. R. Rider was appointed Chairman of the meeting.

The minutes of the previous meeting were read and signed as correct.

The Secretary submitted a print of the Coal Mines (Protection of Animals) Bill, 1930, and drew attention to the absence of the additional clause which had been drafted for the promoter and which it was understood would be included in this Bill. In addition, the Secretary presented a report of an interview which he and Dr. Bullock had had on November 21st, 1930, with Dr. Vernon Davies, M.P., with reference to this Bill.

After discussion, it was decided to forward to Mr. E. Shinwell, Minister for Mines, a copy of the Sub-committee's recommendations for the amendment of this Bill.

The Secretary drew attention to the appointment recently by the Minister of Health of a Committee under the Chairmanship of Viscount Chelmsford with the following terms of reference :—

> " With a view to the consolidation of the enactments applying to England and Wales (exclusive of London) and dealing with (*a*) local authorities and local government, and (*b*) matters relating to the public health, to consider under what heads these enactments should be grouped in consolidating legislation and what amendments of the existing law are desirable for facilitating consolidation and securing simplicity, uniformity and conciseness."

It was decided to invite co-operation by the Royal College of Veterinary Surgeons, and a Sub-committee consisting of the Chairman, Professor Buxton, Mr. Male and Dr. Whitehouse was appointed to act for the Association in the matter.

The motion for the reception and adoption of the report was seconded by Dr. Whitehouse.

Captain Wragg enquired what exactly was meant by " biological products " in the representation to the Ministry of Agriculture. Did they mean biological products in the broadest sense of the term, or was their action limited to the control of vaccines and sera? There were, of course, many biological products that did not introduce disease and which might be used by the owners of animals.

Professor Buxton said he thought he was right in saying that in the letter which it was proposed to send to the Minister of Agriculture certain biological products would be mentioned.

Major Dunkin observed that he believed it was stated that the efforts of the Committee were directed towards the control and standardisation of imported veterinary biologics; he would like to ask why that undeserved halo had been set upon biological products originating in this country.

Professor Buxton pointed out that there were three clauses in the resolution; the intention was that the first paragraph should deal solely with the control of importation; that the second should require that all biological products for use in animals should have their substance and quality clearly stated on the package containing them, and the third that all the products should be of the substance and quality stated.

Professor Wooldridge said that if the reference to importation was put third instead of first, the resolution would not then tend to emphasise that in particular.

Mr. Coleman expressed his willingness to accept that suggestion. With this alteration, the report was adopted without further discussion.

Organising Committee.

The report of this Committee was read, as follows, by Captain Rider (Chairman), who moved its reception and adoption :—

A meeting of the Organising Committee was held at the offices of the Association on Monday, January 5th, 1931, when Captain J. R. Rider was re-appointed Chairman of the Committee for the ensuing year.

The minutes of the previous meeting, having been published in the *Veterinary Record*, were taken as read and signed as correct.

A letter was read from the Hon. Secretary of the North Wales Division intimating that, as suggested in the Association's letter of August 27th, 1930, the Division had appointed a small Committee to co-operate in increasing the membership of the N.V.M.A. by inducing non-members in the area covered by the Division to join the Association.

Consideration was given to a letter from a member (received through the Editorial Committee) suggesting, as a means of creating greater interest in veterinary science, the arrangement by the Council of the Association of a series of full-dress debates on veterinary subjects, such debates to be held at prominent centres in England, Wales, Scotland and Ireland and to be under the Chairmanship of a member of the Council.

It was decided to take no action in the matter.

The Secretary intimated that only one candidate had entered for the 1930 competition under the Clinical Prize Scheme for Students, and after considering the Assessors' reports on the notes received, it was resolved to recommend :—

(*a*) That a prize be awarded and that it be the Third Prize.

(*b*) That paragraph 1 of the regulations governing the Scheme be amended to read :—

> " Three Prizes are offered annually for competition among veterinary students of Veterinary Colleges recognised by the Royal College of Veterinary Surgeons for the best collection of notes on a minimum of four and a maximum of six clinical cases. Post-graduate students are not eligible to compete."

(*c*) That the attention of the Principals of the Veterinary Colleges be drawn to the limited response to the scheme in the past and they be asked for their closer co-operation with the object of bringing the scheme more prominently before students in the future.

(*d*) That a hearty vote of thanks be accorded to the Assessors (Messrs. H. J. Dawes, P. J. Howard, and D. Imrie) for their valuable services to the Association in connection with last year's competition.

A report was made of matter circulated to the press during the past quarter and also of the work done in the correction of mis-statements appearing in the press. The Committee approved the action taken.

Principal Hobday, in seconding the motion, proposed that the value of the prizes (£15, £10 and £5) be inserted in paragraph 1 of the regulations governing the Clinical Prize Scheme.

Captain Rider offered no objection, and this was agreed.

With this addition, the report was approved by the Council.

The Chairman took the opportunity to comment that the Committee were very disappointed that there was such little competition in connection with the Clinical Prize Scheme, and they hoped that, with the measures and amendments which had been suggested for next year, they would have a large number of applicants for participation in the competition, which must be very beneficial both to the student and to the profession. They also hoped that the Colleges

would make the scheme as prominent as possible, so that the students could have no excuse for failing to enter on the ground that they knew nothing about it.

Resolutions from Divisions.

(i) *From the Southern Rhodesia Veterinary Association* :—

"The Council of the Southern Rhodesia Branch of the National Veterinary Medical Association views with grave concern the possibility of the closing down of the Royal Veterinary College, London, and feels that this Institution is of Imperial importance and should be endowed by the State and not be dependent on contributions from the veterinary profession and the public."

The Chairman enquired if the Southern Rhodesian V.A. made any suggestions as to what should be done.

Receiving an answer in the negative, Mr. Male invited Principal Hobday's observations on the resolution.

Principal Hobday stated that he had nothing to add to what had already been issued on behalf of the College; that it should be put on a sound financial footing and be endowed to a large extent by the State. He would like to thank the Southern Rhodesia Veterinary Association for having taken sufficient interest in the matter to send that resolution, which would be of assistance to the College.

Major Rabagliati seconded Principal Hobday's motion that the resolution be adopted.

It was eventually agreed to forward the resolution, as from the N.V.M.A., to the Ministry of Agriculture, to the Dominion and Colonial Offices, to all Members of Parliament, to the Governors of the Royal Veterinary College, and to the Press Association, and informing them that a resolution in similar terms had been received from the Southern Rhodesia Veterinary Medical Association.

(ii) *From the Derbyshire Division* :—

"That some inquiry be directed into the People's Dispensary for Sick Animals of the Poor, with special reference to :—

1.—The aims of the Society;

2.—The training of those of its officials responsible for the treatment of animals—

And that the object of the inquiry be to determine whether the following interests are adequately protected :—

1.—Those of sick animals;

2.—Those of veterinary practitioners.

After some discussion, in which Captain Gunning, Mr. McIntosh, and Principal Hobday took part, the Chairman proposed that the resolution be sent to the Organising Committee, to be dealt with.

Major Over seconded.

Mr. McIntosh proposed that it should also be sent to the R.C.V.S.

Mr. Gooch seconded, and both resolutions were agreed to.

(iii) *From the North Wales Division* :

"That the members of the North Wales Division of the National Veterinary Medical Association of Great Britain and Ireland, assembled in general meeting, endorse in its entirety the terms of the letter addressed by the National Association to the Ministry of Agriculture on July 23rd last on the subject of the duties of Advisory Officers, and assures the National Association of the full support of the Division in any measures it may take to secure the drastic modification of the present advisory scheme, or failing that, its discontinuance. This Division is of opinion that the working of the advisory scheme is doing great harm to the position and work of the general veterinary practitioner and also considers that the duties prescribed for, and enjoined upon, the advisory officers cannot be carried out without breaking the rules of professional etiquette governing all members of the Royal College of Veterinary Surgeons."

The Chairman described that resolution as a very important one, inasmuch as it supported the action that was being taken by the "National" with regard to Veterinary Advisory Officers, and it might be very helpful to the Association to have that backing.

Mr. McIntosh, speaking as Chairman of the Committee *re* Veterinary Advisory Officers, said that copies of the resolution had already been sent to the Ministry of Agriculture. He thought that all that was necessary was for that Council to send a letter to the North Wales Division, thanking them for that mark of confidence in the Committee and the Council, and informing them that the matter was receiving attention. They were very pleased indeed to have that expression of confidence. (Hear, hear.)

Mr. Howel V. Hughes said that, as representing the North Wales Division, he would like to support that resolution. The members of his Division had discussed the matter very thoroughly. It came up in this way: The Professor of Agriculture at Bangor University College circularised a letter to the North Wales practitioners intimating that they were going to extend advisory work there and the six North Wales counties were contributing towards the maintenance of the Assistant Advisory Officer. The members thought that the time had come to ventilate their opinions, and the discussion was a very full one. The Veterinary Advisory Officer was present at that meeting, with his Assistant, and the arguments would be published, he understood, in the report of the meeting to appear shortly in the *Veterinary Record*. He was sure, however, that he ought to urge the importance of this matter, because the members of the Division felt very strongly that their work was being taken away from them by the advisory scheme. It was quite an impersonal matter, they were not discussing individuals but the scheme itself, and they felt that the time had arrived when it should be discontinued, or at least modified. Speaking personally, and not for his Division, he was very much opposed to the scheme, which, indeed, he opposed as early as 1925, when he took exception to the methods by which it was being carried out. He had heard what Mr. McIntosh had said, and he was sure that he, as would be his fellow members of the North Wales Division, was pleased that things were going on so well in that connection. They had certainly hoped and thought that that resolution would strengthen the hands of the Committee and the Council.

It had occurred to him—again as an individual—that it might still further strengthen their hands if they were to have the opinion of practitioners generally in areas where these officers were working. He felt that if practitioners were consulted they would vote definitely against that scheme and that it time it would have to be dropped. If it were not dropped, and if it were, on the contrary, extended much further, the practice of the veterinarian would be

taken away from him, and he thought that the resolution should be fully supported by word and action. (Applause.)

The resolution was put to the meeting and carried unanimously.

(iv) *From the Lancashire Division* :—

"That efforts be made with a view to having the telephone numbers of members of the profession shown in the Register of Veterinary Surgeons."

The Chairman said that, according to the report of the last meeting of Council, R.C.V.S., a similar suggestion was then considered, but not agreed to. The Secretary was, however, instructed to insert, wherever possible, the telephone numbers of veterinary institutions. A proposition was made by Lieut.-Colonel Simpson and seconded by Major Over, that the telephone numbers of members of the N.V.M.A. be inserted in the Association's Register of Members.

It was agreed to request the Finance Committee to consider and report upon this matter, and to forward the resolution to Council, R.C.V.S.

Next Meeting.—On the proposition of Professor Buxton, seconded by Captain Wragg, it was decided to hold the April Quarterly Meeting of Council in London.

There being no further business, the meeting concluded with the passing of a hearty vote of thanks to Mr. Male for his conduct in the Chair.

Oil Pollution of the Sea.

Danger to Bird Life.

"In view of the Bill to be introduced into the House of Commons to prevent oil pollution of the sea, which is having such disastrous effects on marine bird life, the Royal Society for the Prevention of Cruelty to Animals is collecting information on the subject," says *The Times*. "It is in the first place asking people who come across birds suffering from the effects of oil to communicate details to the head office of the R.S.P.C.A. at 105 Jermyn Street, London, S.W.1. It is in the next place securing information with reference to damage to fish fry, owing to oil destroying the plancton and other infusoria, which form the food of small fish fry which feed near the surface of the water; and also to the sinking of the oil sludge, which covers the bottom and so destroys the food for deeper feeding fish.

"There are some who contend that only international action can cure the evil, but this point of view is, in the Society's opinion, likely to delay remedial action. The 1925 Conference at Washington on Oil Pollution made certain recommendations, among other things suggesting that certain areas of the sea should be allocated for the discharge of oil. In the opinion of the R.S.P.C.A., as well as of other kindred organisations, this is entirely useless, and indeed would be a definitely harmful step by allaying public alarm, and therefore delaying the real end to this evil. If these recommendations were put into force the oil discharged in these areas would ultimately, owing to tides, winds, and currents, drift towards the shores, and the position would be the same as at present. There has been at Geneva an International Convention based on these recommendations, but there is no sign of action. In the meantime, while it is perfectly true that the seas of the world will not be clear of pollution until international action has been ratified by all the Great Powers, it is, in the opinion of the R.S.P.C.A., no argument against the greatest sea Power of the world taking steps to cease contributing to this nuisance. By doing this it would create a precedent for international legislation of a really practical kind."

N.V.M.A. Divisional Report.

Central Veterinary Society.

"A Reminder of Old Times" at Red Lion Square.

A paper by Major R. F. Wall on the subject of "Torsion of the Bowel in Horses" enabled the Fellows of the Society to spend a most enjoyable evening at 10 Red Lion Square, W.C.1, on Friday, January 2nd, 1931, in a discussion in which the horse made one of his nowadays all-too-rare appearances as the central figure, and it was evident that many who deplore the modern mechanised aspect of the London streets revelled in what was aptly described as "a reminder of old times."

The chair was occupied by the President (Captain G. Dunlop Martin) and there were also present Captain L. S. Balls, Messrs. A. J. Beeson, W. Brown, R. E. C. Bullen, Dr. Fred Bullock, Mr. H. E. Bywater, Captain D. Reid Chalmers, Messrs. R. Eaglesham, H. D. Jones, H. King, Professor J. McCunn, Mr. J. W. McIntosh, Major-General Sir John Moore, Mr. W. Perryman, Mr. A. W. Stableforth, Captain R. J. Stow, Major R. F. Wall, Messrs. A. S. Watson, F. W. Willett, R. A. Willett and Captain J. F. Macdonald (Hon. Secretary). Messrs. D. Hossinson, N. Oiron and G. V. Short were present as visitors.

The minutes of the previous meeting, having been published in the *Veterinary Record*, were taken as read and were signed as correct.

Correspondence.

(1) Apologies for absence from Mr. H. Bell, Sir John Bland Sutton, Principal F. T. G. Hobday, Professor James Macqueen, Captain S. J. Motton, Vety.-Colonel G. Rees-Mogg, Captain H. L. Roberts, Mr. E. L. Stroud, Mr. Mark Tailby and Captain W. K. Townson.

In his letter, said the Hon. Secretary, Professor James Macqueen said that he had returned home after five weeks in hospital, for recuperation prior to an operation in February. He was able to get about the house, but was not strong enough to go out, though his health was improving.

(2) From Major Robin Catmur, resigning Fellowship as it was impossible, on the ground of ill-health, for him to attend the meetings of the Society.

(3) From Lieut.-Colonel T. Dunlop Young, following upon the acceptance of his resignation, at the last meeting of the Society, conveying to the Fellows his kind regards and assuring them that he would always be at the service of the Society if he could help them at any time.

(4) From the N.V.M.A., thanking the Society for the letter of good wishes for the New Year which had been received.

The President said that he was sure that they were all very glad to have the letter from Professor Macqueen. (Hear, hear). He thought it would be only fitting if they were to ask the Secretary to write him an appreciative letter and wish him a speedy recovery to health. (Applause.)

Proceeding, the President observed that all deeply regretted both Major Catmur's resignation and the circumstances which necessitated it. He had recollections of Major Catmur's great enthusiasm for matters veterinary, and he thought that the Society, in expressing regret at his resignation, which they could only accept, should also extend to Major Catmur their most sincere sympathy and

convey their earnest hope that he would soon be restored to health and be able to resume his valued association with the "Central." (Applause.)

Mr. F. W. Willett, in seconding, warmly associated himself with the President's remarks. Major Catmur was the best of fellows, and had been a splendid and most enthusiastic Secretary to the Royal Counties V.M.A. His loss was a great one to them, and they could only hope that he would enjoy better health in the near future. (Hear, hear.)

It was decided to re-approach Colonel Young with a view to securing the withdrawal of his resignation, if possible.

Morbid Specimens and Cases of Interest.

Mr. R. A. Willett said that he had no morbid specimen to show them, but he desired to mention the use of calcium gluconate as a preventive of milk fever, as he did not know whether or not it was being used for that purpose by other Fellows.

He had had two recent cases which he thought might be of interest. One was a Jersey cow which had been down three years running with milk fever and last year had two relapses following the first attack. Within two or three hours of calving he gave her 200 c.c. of the solution, and she had since shown no sign whatsoever of going down.

The subject of the second case was a very valuable Shorthorn cow, which had been down twice and also showed some signs of tetany in all her limbs before calving. As soon as she had calved she was given 200 c.c., and there was no further sign of tetany. He thought that, seeing that both these animals had been down in previous years, the use of this solution was worth considering in all valuable animals in the prevention of milk fever.

He had one other case to bring before them. On December 19th he was called, in the middle of the night, to a Jersey cow. It would have been her seventh calf, and she was not due until the 19th of this month (January). She was down, being quite delirious, and so bad that someone had to sit on her head for three-quarters of an hour, otherwise she would have knocked off both horns and done other damage. She showed all the signs of what was called typical milk fever, though she was quite dry at the time. She was given 250 c.c. of calcium gluconate, and after five hours was quite normal, with the exception that she was not on her feed. The following morning she showed signs of a relapse and another 250 c.c. were given, with the same result, except that she did not get up. From that date, until the previous day, when she was destroyed, she was quite unable to move and for the past week had been unable to bend the legs at all. He thought the fatal termination was due to her not being properly nursed. Early in the case he had examined her *per rectum* to see what was the condition of the calf. He was under the impression, from the absolute lack of movement of the calf, that it had died and that probably the whole case was one of toxæmia due to the death of the calf. On January 1st the cow had got so bad and showed such bad sores that, in view of the fact that she was not due to calve until the 19th, she was killed. He was at the place that morning for the *post-mortem*, when he was amazed to find that the calf had been alive up to the time that the mother was killed. The liver of the cow was twice its normal weight, and its substance was rotten throughout. That was a case of toxæmia due to the inability of the liver to remove toxins from the blood, and he thought that probably many cases diagnosed as milk fever—a very confusing term—were not cases of milk fever at all, but cases of toxæmia due to many other causes.

The President said that it seemed to him that the cases brought forward by Mr. Willett raised some very interesting problems for them, and one point that occurred to him was whether anyone in cow practice nowadays was using any method of feeding calcium for some time prior to parturition. He had been using calcium lactate a good deal for some little time in canine practice, giving moderate doses, and he was inclined to think that he had found it very useful in some cases. They were told by the biochemists nowadays, that so many of the ills from which animals suffered, both four-footed and two-footed, were due to a deficiency of calcium in the blood, and it was in working on that theory, to a large extent, that he had adopted the use of calcium lactate.

Mr. R. A. Willett observed that in a course of a talk with Captain Little, of Reading, he had been given to understand that the liming of pastures lessened the incidence of milk fever a great deal.

Mr. H. E. Bywater observed that he was afraid that he could not say that he had a great experience of cattle practice in these days, but he had under his supervision four farms, and on those farms what were known as mineral bricks were constantly used. The cattle were also fed a proprietary cake which boasted that it contained a large percentage of vitamin D, the vitamin which assisted in the assimilation of calcium. One would have thought that in these circumstances milk fever would have been absent from those farms but, while the incidence of the disease had always been fairly low, cases still cropped up in spite of that method of feeding.

With regard to the use of calcium gluconate, he had recently tried a preparation which was said to be a colloidal form of calcium *plus* vitamin D, and he had obtained good results.

He would like to mention a case of toxæmia due to parturition, in which the uterus was badly torn and where half the fœtal membranes had been retained and were rotten. He was so worried about the case, which had been going on for a fortnight, that he got an old veterinary friend of his, who happened to be staying with him, to see it. The friend told him that he would be lucky if the case recovered, but it made a good recovery, which he (Mr. Bywater) attributed largely to calcium medication.

Captain L. S. Balls said that he would like to report a very interesting case to which he was called recently. A horse was turning off the main road into a side turning, when a motor-car came along and knocked the pony off his legs and the van he was drawing right over. The speaker was called to the case, still on the road, and when he looked at the pony he saw that the breathing was extraordinary, but they managed to walk the pony to a stable about a hundred yards away. The animal had the greatest difficulty in walking down the hill towards the stable, but they got it down by pushing it from the rear.

Having seen the pony safely installed in the stable, the speaker left the case. When he saw it again in the evening the breathing was still bad and he could hear a crack at the stifle joint. The main bones were not broken, however, and as he turned to leave, the pony followed him

out of the stable, but in walking he knuckled over on the hind joints. The animal died at four o'clock in the morning, and *post-mortem* disclosed an extensive rupture of the diaphragm, the large intestine having herniated into the lungs. The damage to the stifle joint was confined to its interior: the top of the tibia was broken where it joined the femur and, while one could hear the crepitus, the animal could walk on the limb; the patella was quite intact. The reason why the pony could not walk downhill was because the bowels were in the lungs.

Doubtless he would have destroyed the animal at the outset, as the breathing made him suspect rupture of the diaphragm, but for the fact that the pony was insured and he did not like to take the risk in the absence of the insurance company's veterinary surgeon.

Mr. W. Perryman thought that in such cases as that described by Captain Balls, veterinary surgeons should ignore the fact that the animal was insured and destroy it on the grounds of humanity. He was confident that if, when they saw that an animal was in a hopeless condition, they took a strong line and put it out of its misery, the insurance company would not attempt either to refute the diagnosis or to contest the action taken. In his opinion, cases such as that were far too often kept alive because the animal was insured. The wording of the police certificate stated: "The animal was mortally or so severely injured that it was cruel to keep it alive, and therefore advised immediate slaughter."

Mr. Perryman concluded by saying that the practitioner had the police behind him in these cases.

Mr. J. W. McIntosh said that so far as his experience went he had no complaint to make against the attitude of insurance companies. They must naturally reserve certain rights of protection, but when the immediate destruction of an animal was indicated on humane grounds, there need be no hesitancy on the part of the veterinary surgeon to do his duty and no company would dispute his right to take such action, when given after a full and careful examination and with an unbiased regard to all interests concerned. In the case of street accidents when police intervention was called for, the acting veterinary surgeon for that authority, should be very guarded in his decision and especially so if it involved destruction of the animal. Frequently an examination of that kind had to be carried out under very unfavourable conditions, and in an atmosphere of public feeling, with the result that hasty decisions were sometimes arrived at, which were found afterwards to be erroneous.

He could recall more than one case of this kind, and although the veterinary surgeon was partly protected under police regulations, it did not relieve him of possible trouble if *post-mortem* revealed a wrong diagnosis and unnecessary slaughter.

Moreover, it might inflict serious loss and unless perfectly satisfied and certain (and there were many cases where one could be) it was well to avail oneself of a second opinion and in a city like London that could be obtained with very little delay and one was then on safe ground.

Captain Balls observed that the Royal Insurance Company asked him to give a certificate, as to the cause of death, the next morning, and he replied that he could not give one until he had made a *post-mortem* examination.

The President said that, in the course of his professional experience, he had had cases that had puzzled him considerably as to whether he could or could not have an animal destroyed, and it was not very easy to make up one's mind in many cases.

With regard to the question of calcium deficiency, there was a very interesting article in the *Times* or *Observer*, two or three months ago, detailing the experiences of a research man, at some agricultural research station in North Wales, in connection with growing pedigree grasses very carefully with a view to preserving their freedom from cross-fertilisation. The main point emerging from the paper was the great deficiency in calcium throughout the pastures of the United Kingdom. This man put forward the suggestion that in order to ensure a sufficiency of calcium on the pastures of the country generally, there would be entailed an expenditure which would amount, in many cases, to more than the land itself was worth; but at the same time he emphasised the fact (according to his view) that when a sufficiency of calcium was made available a very much better grass would be grown—thus enabling very much more livestock to be supported on the same acreage—thereby grading up farming generally—and the stock raised on the same (improved) land would be so much more valuable and present much greater resistance to disease all round.

Captain Balls related a case in which a dog was shot in the head by the next-door neighbour. The bullet passed in over the dog's eye, entered the brain case, travelled over the brain and lodged in the brain on the far side, at the base of the skull. That dog was still alive, with two pieces of bullet in its brain, and it seemed as well as ever it was—would Mr. Perryman suggest that it should have been killed? The X-ray picture was a wonderful and most interesting one.

Mr. Perryman asked, amid laughter, if the dog was insured. His point was that too often suffering, hopeless cases were kept alive because an insurance company was concerned.

Mr. McIntosh observed that he thought that that involved a legal question and as they had an Hon. Fellow Barrister (Dr. Bullock) with them that night he might be able to put them right on that point.

Dr. Fred Bullock said that it so happened that the very case dealt with by Captain Balls was referred to by him in the new edition of the Handbook of Veterinary Surgeons. The particular sections of the Protection of Animals Act, under which the veterinary surgeon must act if an animal was injured on the street, were given in full in the Handbook. The paragraph in the Handbook read as follows:—

> "Here it is to be noted that any negligence in certifying may lead to an action, if it should be found on *post-mortem* examination that the animal was, in fact, not in such a condition that slaughter was necessary. The terms of the section require the certificate to state that the animal is 'mortally injured, or so severely injured, or so diseased, or in such a physical condition that it is cruel to keep it alive.' In the case where a veterinary surgeon certified that a specific fracture had occurred, which on *post-mortem* examination was found not to be the

case, he was sued for damages for negligent certification leading to unnecessary slaughter. It would not appear, however, that the certificate need state particulars of injury, and it would be advisable to certify in the actual words of the Act."

If that were done, concluded Dr. Bullock, the insurance company would, in his opinion, certainly not succeed in any action so long as it could be proved that the veterinary surgeon's certificate was honestly given, and that the animal was slaughtered in accordance therewith.

Professor McCunn said that he thought that the legal position was that, even if at the *post-mortem* lesions stated to be present were not found, the veterinary surgeon who had certified that slaughter was necessary, if he could prove that he had used all due care, was exonerated; nothing could be done or said against him. The other side would have to prove that he was negligent in his examination.

Dr. Bullock: "That is the position."

Captain R. J. Stow asked what was the position of a veterinary surgeon treating a cow which he had advised his client to have destroyed, when the insurance company, on being approached, said they were sending their veterinary surgeon to see it, and the cow remained in a very bad condition for three days, pending the attendance of the other veterinary surgeon?

Professor McCunn expressed the view that no doubt arose in the case quoted by Captain Stow. If Captain Stow's opinion was that the cow was suffering mortally, he could kill it at any time, so long as he took due care in his examination of the animal. In his opinion, moreover, if Captain Stow said that the animal was suffering, the insurance company could be proceeded against for aiding and abetting cruelty.

Major Wall observed that, had it been his case, he would have called in the police, or the R.S.P.C.A. He would have certified that the animal ought to be destroyed, and have given the insurance company sufficient notice—24 hours, but not three days—and then called in the authorities.

Elections to Fellowship.—The following gentlemen were unanimously elected as Fellows of the Society:—Mr. J. W. H. Holmes (Royal Veterinary College, proposed by Professor McCunn, seconded by Professor Wright; Lieut.-Colonel W. Jelbart (c/o Glynn Mills & Co.), proposed by Lieut.-Colonel E. Argyle, seconded by Principal Hobday; Mr. R. K. Kent (c/o Glynn Mills & Co.), proposed by Captain A. Barr, seconded by Major Glynn Lloyd; Miss Gertrude Knight (Dorking), proposed by Major H. Kirk, seconded by Major F. J. Taylor; Mr. R. Machin (Royal Veterinary College), proposed by Major R. F. Wall, seconded by Professor J. G. Wright, and Mr. A. L. Thomas (London), proposed by Mr. G. H. Livesey, seconded by the Hon. Secretary.

Any Other Business.

The Hon. Secretary said that there was one matter which he thought he should bring to their notice under that heading and that was the question of the Garnett Memorial Fund. The applications for that Fund were now due, and they should decide whether they should recommend, as the recipient of the annuity under the Fund, one of their old members who was now in very straitened circumstances, Mr. ——— was at one time a very active member of that Society, and it had been suggested by Dr. Bullock that the Fellows might wish to recommend him to the Victoria Veterinary Benevolent Fund for the annuity.

Mr. Perryman moved that the recommendation be made accordingly, and this was seconded by Mr. F. W. Willett and carried unanimously.

The Hon. Secretary drew the attention of the Fellows to two rather serious errors which had crept into the recently printed and circulated rules of the Society, of which the printers had omitted to send him a proof. With the next agenda they would receive a small slip with the correct version of the affected rules printed thereon, and which they might put in with their copy of the rules.

Sir John Moore commended to the notice and support of Fellows the United Hunts Ball, to be held at the Savoy Hotel on January 15th, and, this year, in aid of the Re-building Fund of the Royal Veterinary College.

Replying to Captain Stow, Sir John said that notice had been sent to all Masters of Hounds and he was sorry that it had not been brought to the notice of Fellows before that evening.

The President said that, arising out of that, they no doubt knew that on the previous Saturday all the Hunts in the Kingdom were asked to have a cap taken in aid of the Re-building Fund of the College. He was at the Meet of the Essex Drag Hounds on that day, when a cap of fifteen guineas was obtained: if all the Hunts in the country did equally well, a nice sum would be raised. (Hear, hear.)

Mr. J. W. McIntosh appealed to the Fellows to support, by presence or donation, the Dramatic Entertainment which was being produced by Colonel Simpson and the Maidenhead Dramatic Society at the Rudolf Steiner Hall, London, on January 6th, 1931, on behalf of the Victoria Veterinary Benevolent Fund.

Captain Stow brought to the notice of the meeting a cutting from a daily paper in which the writer criticised the fee charged by a veterinary practitioner for an operation on a female cat; as his hearers would realise, the word "she" in the note (which he read) made all the difference in this connection, but the lay reader would gather that the operation concerned was a small one. Steps should be taken to prevent the lay public from being misled, in this way, as to the fees charged by veterinary surgeons for their services.

Captain Balls quoted, as another instance of the way in which the public was misled, a statement in the Press that, in order to treat dogs and cats, all women had to do was to get a certificate.

The speaker also referred to the question of the use of rubbered shoes for horses, in connection with which he had been approched by a firm only that day. They had a horse which had worn a pair of those hind shoes out in eight days. The firm which supplied these shoes sent down a man of their own to attach them. He knew that a number of police horses were being shod with those shoes; if the horse had a good foot they would keep on very well, but if it had a bad one he feared that the clenches would loosen and the shoe fall off. If the shoe answered, numbers of firms would adopt it on account of its lasting qualities, but he would like to hear the views of some of the members of the Society on that subject, because farriers would not

want to put them on if they were going to interfere with the money they received for making shoes.

The meeting accepted with applause the suggestion of the President that the question of shoeing, with particular reference to the use of rubbered shoes, would make a very interesting subject for discussion another evening.

Paper.—They had now, however (proceeded the President) to consider their friend the horse in a different relation, and he had much pleasure in calling upon Major Wall to give them his paper upon the very interesting subject of "Torsion of the Bowel in Horses." [Major R. F. Wall's paper is reproduced, together with a full report of the discussion upon it and the essayist's reply, at the commencement of this issue of the *Record*.—Ed.]

This concluded the business of the evening, but before the Fellows separated Mr. H. D. Jones proposed a very hearty vote of thanks to Major Wall for his paper, which he described as one of the most interesting, instructive and enthusiastic papers the Society had had presented to it for a considerable time.

The President, in seconding the vote of thanks, said that they had been privileged to listen to a most absorbing paper. Major Wall had placed the various aspects of the disease before them in a most able way and it had been, as had been remarked by others, "the old-time horse paper." (Applause.) He did hope that, during his year of office, they would have the pleasure of listening to more of them. (Hear, hear.)

A tribute having been accorded to Captain Dunlop Martin for his conduct of the proceedings, Professor McCunn drew applause from departing members by suggesting that, as interest in the horse had reached such a high level that night, the President might seek to induce one of their number, who was particularly interested in that animal, to give the Society a paper on shoeing, which was a great problem at the present day.

J. F. Macdonald, *Hon. Secretary.*

Influence of Magnesium Salts on Strychnine or Cocaine Poisoning.

Hypodermic injection of 0·2 gm. of magnesium sulphate per kilo body weight in rats causes a slowing of the respiration; with 0·4 to 0·7 gm. narcosis lasting for 30 minutes is produced; with 0·8 to 1·0 gm. the narcosis lasts for an hour; and longer with still larger doses. Combined injection of magnesium and strychnine increases the mortality among rats, death resulting from paralysis of the respiratory centre. Cocaine combined in the injection with magnesium sulphate exerts an antagonistic effect on the central nervous system, but the cardiac action is a summation of the effects of the two drugs. Magnesium sulphate cannot, therefore, be employed as an antidote for strychnine or cocaine poisoning.—S. V. Ziganov (*Zhur. exper. Biol. Med.*, 12, 252; through *Chem. Abstr.*, 1930, 24, 2196).—*Pharmaceutical Journal.*

H.M. Stationery Office Publication.

The undermentioned has been published recently. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses:—London: Adastral House, Kingsway, W.C.2, and 28, Abingdon Street, S.W.1; Cardiff: 1, St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120, George Street.

	s. d.	s. d.
Health for Scotland, Department of:—		
Milk Consumption and the Growth of School Children. Report on an Investigation in Lanarkshire Schools. December, 1930. (49-217-0-0). ...	0 3	0 3½

"Union's Finest Abattoir."

"Thanks to Colonel Irvine-Smith."

Under the above headings, the *Rand Daily Mail*, of Johannesburg, reports in its issue of December 18th, 1930, that the advance that has been made in the humane slaughtering of animals was the subject of a special recommendation to the Johannesburg City Council by the Public Health Committee. The recommendation was agreed to as follows:—

"That the Council records its highest appreciation of the zeal displayed by the Director of Abattoir and Live Stock Market (Colonel James Irvine-Smith, C.B.E.), in designing and in stalling the improved cattle stunning pens at the abattoir.

"That, in addition to thus recording the Council's sincerest thanks, the above report and resolution be conveyed under the seal of the Council to Colonel James Irvine-Smith, C.B.E."

The report referred to stated:—

"The Director of Abattoir and Live Stock Market has designed and installed ten improved cattle stunning pens, with the necessary races. This work has been carried out without alterations to the existing permanent buildings and equipment contained therein erected some 21 years ago. The change-over to the new method was so arranged that it took place without interference with the slaughtering routine.

"The following are the advantages gained:—

"These improved stunning pens have modernised the old slaughter halls on the ground floor. They are in accordance with and conform to the latest humane killing practice. The old slaughter halls have now been brought into line with the upper slaughter halls.

"Cattle, with the exception of those killed under religious rites, are no longer dragged or pulled by chains into the slaughter halls, and the handling of the live animals before slaughter is reduced to a minimum.

"Cattle are stunned outside the building by mechanically-operated instruments and the carcasses are then transported to the dressing floors.

"The slaughtering work is more efficiently executed and has been simplified and speeded up at least 25 per cent.

"The slaughtering of cattle under religious rites has been speeded up and the handling reduced by at least 50 per cent.

"The immediate heavy capital expenditure contemplated for upper slaughter hall extensions is not now required.

"The Johannesburg City Abattoir is the only abattoir in South Africa complying with and conforming to all conditions laid down in the Humane Slaughter Bill, which was before Parliament last session, *i.e.*, bovines are driven one at a time along a race into a pen where they are stunned by means of a mechanically-operated instrument and animals killed under religious rites are killed in accordance with these rites.

"A Monument."

"Mr. W. H. Port described the abattoir as a monument to Colonel Irvine-Smith and to some Councillors who had assisted with the work.

"Last year Mr. Port attended, with Dr. Milne, the M.O.H., a congress in Sheffield. At that time Sheffield had opened what was supposed to be the finest abattoir in England. After seeing it, Dr. Milne reported that Johannesburg's methods for slaughtering were undoubtedly superior to anything of the kind in Great Britain.

"The present abattoir, said Mr. Port, was opened in 1910, and since that time 20,000,000 animals had passed through the livestock market and approximately 10,000,000 animals had been slaughtered in the abattoir. Four years ago the sidings were increased and now could accommodate 500 trucks a day. Johannesburg provided the finest market in the Union for the farmers, and certainly the market and abattoir did their level best to assist the agricultural industry in every way. It was in Johannesburg that the

All-India Veterinary Conference.

The Needs of a Vital Service.

"The Seventh All-India Veterinary Conference was held to-day at the Daly Memorial Hall under the presidency of Colonel A. Olver, Expert Adviser in Animal Husbandry to the Government of India," says the *Times of India* Bangalore Correspondent, writing to his paper on December 27th, 1930. "A very large gathering of state officials and about 300 delegates from and outside the State participated in the function. Dr. Coleman, who is in charge of the State Veterinary Department, welcomed the delegates and briefly narrated the work so far achieved in the State and mentioned in particular three special features in the Veterinary Department of the Mysore State, *viz.*, the introduction of the serum-simultaneous method of inoculation against rinderpest, the tour of a veterinary officer in village areas where help was most needed, and the growing co-ordination between the Veterinary and the Agricultural Departments.

"In the course of the inaugural speech, Mr. Krishna Rao, Dewan of Mysore, said: 'The Royal Commission observed that veterinary service in this country could not be considered as adequate unless there was at least one veterinary assistant surgeon for every 25,000 cattle. I shall give a few approximate figures to show what is the present position compared with the standard laid down by the Commission. In Bengal, there is one veterinary dispensary for every three-and-a-half lakhs of cattle, in Madras, for every two lakhs, in Bombay for every one lakh, and in Mysore for every three-quarter of a lakh. This comparison is, no doubt, much in favour of Mysore, but the position cannot be considered to be satisfactory anywhere in India and a great deal yet remains to be done for meeting the veterinary requirements of the country.

"'The chief pre-occupation of the Civil Veterinary Department in India will, for a long time to come, be the control, prevention and eradication of contagious and infectious diseases.

"'With the growing pressure of population and the consequent demand for land for cultivation, there is a contraction in grazing areas. It is obvious that there can be no material advancement in the efficiency of cattle unless adequate supplies of fodder are made available. Investigations into the possibilities of growing fodder crops of different kinds, indigenous and exotic, of utilising the grass resources of forests, of improving the yield of grazing lands and of making ensilage on a large scale, require to be explored. Serious efforts are, I think, necessary to encourage the raiyat to grow fodder crops and keep reserves of them for the stall-feeding of his cattle. Systematic experiments in the nutritional values of different kinds of fodder have also, I think, to be undertaken.'

Plea for Uniform Course of Study.

"Major R. W. Simpson, Chairman of the Reception Committee, referring to what has been achieved in Mysore, thanks to the co-operation of the people and the Government of Mysore, said:—

"'Sixty taluks out of 78 in this State have now each a Veterinary Institution and we have great hopes that it will not be long before every single taluk has its own.

"'In India there are now five Veterinary Colleges. These should have a uniform course of study, and the training should be more intensive with special reference to the basic sciences, and if possible, young men who have qualified in basic sciences and who have an aptitude for the work, should be encouraged to enter the profession. I agree with the Royal Agricultural Commission that there should be a Central College manned by specially selected professors for the higher training of men who possess special aptitude for research into animal diseases.

"'We have only one Research Institute for the whole of India. This is out of all proportion and inadequate to meet the needs of a big country like India. I would therefore suggest that the public should be enlisted to prevail on Government to provide Research Stations and to institute "Field Research Work" in each Province in India. If the Provincial Stations co-ordinate with each other, and with the Central Institute, Veterinary Science will advance on right lines, and the future of the profession will be one of increased usefulness to the agriculturist and the State.'

Colonel A. Olver's Address.

A Scheme for Systematic Field Investigation.

"Colonel A. Olver, in the course of his Presidential Address, said:—

"'The status of any profession or State service must, in the end, depend on its economic value and the only avenue along which real advance can be made towards a higher status is along the, perhaps at times, tedious and difficult road of scientific progress. Without effective measures for the prevention and control of disease all efforts to improve livestock must, to a large extent, be wasted, and I would like to impress upon all members of the Indian Civil Veterinary Services the importance of taking every opportunity of increasing their knowledge of stock, and their diseases, in this country regarding which, owing to the immense areas concerned and the enormous numbers of animals for which the existing Veterinary Services are responsible, is as yet very far from complete.

"'In India, up to the present, though a great deal of valuable work has been done at the Muktesar Institute, by the limited scientific staff available, and at some of the provincial veterinary colleges, there has never been a fully organised or equipped veterinary service for the whole country, and no provision has been made for the field investigation which must be the first step in all disease control. Without the knowledge of local disease conditions, obtained from such investigation, further research is impossible, and without an organised veterinary service, capable of applying this knowledge, it is not possible to reap the benefits made possible by research.

"'I want to impress upon you all that a great deal of most valuable information, regarding the diseases from which the live-stock in every province suffer, can be obtained by anyone who will make careful clinical observations and thorough *post-mortem* examinations whenever an opportunity occurs, thus collecting material for further investigation. I may, I think, without indiscretion tell you, purely as a private individual, that I have already put forward schemes to provide for systematic field investigation in every province throughout India, which should, in time, provide the Animal Husbandry Services wtih the precise knowledge required to enable them to deal with stock by scientific methods. The work, however, must be of a practical nature to be of any economic value.

"'I would impress upon you all that the primary function of the veterinary services of India is the control of contagious disease, and that the treatment of minor ills, though of undoubted benefit to the individual, is not the main purpose for which the services are organised and paid by Government. When more fully organised and equipped for the scientific investigation and control of disease the existing Veterinary Services of India should be capable of rendering far more valuable service than in the past and along these lines only can their economic value be so demonstrated as to insure fuller recognition.

"'In the State services the prevention of disease and the education and assistance of stock owners to a higher standard of Animal Husbandry are the directions in which results of the greatest economic value can be obtained, and State services should concentrate their energies on such work rather than on the treatment of individual cases.

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farmers found the keenest competition for their cattle. The Director had saved the municipality thousands of pounds.

"Councillors A. Law Palmer, J. Page, H. Kroomer, Mrs. Pemberton, Maidwyn Edmund, J. S. Hancock and A. R. Bloch joined in the tributes to Colonel Irvine-Smith."

"'In India, where the cow is so much reverenced and of such essential importance to the community, the scope for such work is unlimited, and there should be a satisfactory future for anyone who is willing to undertake the constant study which is essential to a proper understanding of disease, and who can demonstrate his practical value to the community.'"

Notes and News.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

Feb. 2nd.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, 4.30 p.m.

Feb. 5th.—Meeting of the Central Division, N.V.M.A., at 10, Red Lion Square, W.C.1.

Feb. 12th.—Annual General Meeting of the Lincolnshire and District Division, N.V.M.A., at Grantham.

Feb. 13th.—Meeting of the North Wales Division, N.V.M.A., at Aber, near Bangor.

Feb. 20th.—Meeting and Annual Dinner of the Midland Counties Division, N.V.M.A., at Birmingham.

Mar. 13th.—Yorkshire Division, N.V.M.A.; Dinner-dance at Leeds.

R.C.V.S. Council Election, June, 1931.

The following nominations have been received up to date:—

	Proposers:
Bradley, Dr. O. Charnock	Sir J. M'Fadyean. Major J. Abson.
Gaiger, Prof. S. H.	Lieut.-Colonel J. W. Brittlebank. Lieut.-Colonel P. J. Simpson.
Holroyd, Mr. J.	Mr. E. H. Curbishley. Lieut.-Colonel J. W. Brittlebank.
McIntosh, Mr. J. W.	Dr. O. Charnock Bradley. Mr. G. P. Male.
Male, Mr. G. P.	Sir J. M'Fadyean. Major J. Abson.
Whitehouse, Prof. A. W.	Sir J. M'Fadyean. Lieut.-Colonel J. W. Brittlebank.

These names are included in the Overseas Voting Papers now being issued.

A Truly Happy Ending.

PLAY PRODUCES NEARLY £100 FOR THE "VICTORIA."

We are informed that the splendid sum of £95 2s. 7d. will be handed over to the Victoria Veterinary Benevolent Fund by Lieut.-Colonel P. J. Simpson, the producer of the admirably-staged and acted play "The Happy Ending," which, as our columns bore witness last week, gave intense enjoyment to a large company of veterinarians and their friends. That pleasure will be enhanced by the knowledge that their support, together with that given by those who sent "apologies for absence" in the form of donations, has enabled Colonel Simpson and his Maidenhead friends thus handsomely to fulfil the object of their dramatic endeavour—to raise a really substantial sum for the profession's own charity.

Royal Veterinary College.

Sir Douglas Newton, the Chairman of the Conservative Agricultural Committee, reported to a meeting of that body on January 20th, a communication from the Minister for Agriculture on the position of the Royal Veterinary College.

The Committee have on several occasions pressed the Government for an adequate grant towards the reconstruction and maintenance of the institution. Dr. Addison wrote that an application by the College for assistance was now before the Pilgrim Trust; adding that, if this be made, the problem of the future of the College would, he thought, be satisfactorily solved.—*Morning Post.*

Colonial Service Veterinary Scholarships.

The following list gives the names of candidates selected for Colonial Veterinary Scholarships. Holders of these scholarships will, subject to vacancies being available, normally be offered appointments in the Colonial Service on completing satisfactorily their course of training:—

Name.	University or College.
Anderson, J.	Edinburgh.
Gordon, R. F.	Aberdeen.
James, A. J.	Royal Veterinary College, N.W.
Lancaster, W. E. ...	Cambridge.
Mair, A.	Aberdeen.
Prentice, E. G.	Glasgow.
Purchase, H. S.	London.
Robertson, A.	Aberdeen.
Wells, C. W.	London.

The National Horse Association of Great Britain.

The President of the National Horse Association of Great Britain—Sir Archibald Weigall, K.C.M.G.—announces that His Royal Highness The Prince of Wales, K.G., has honoured the Association by graciously consenting to become its Patron.

Foot-and-Mouth Disease in Bedfordshire.

The existence of foot-and-mouth disease was on Monday confirmed at Aspley Guise, near Woburn, Bedfordshire.

The prohibition of movement of animals area includes parts of the Counties of Bedford, Buckingham, Hertford and Northampton.

R.C.V.S. Obituary.

West, George Henry, Croft House, Newent, Glos. Graduated London, March 31st, 1880; died January 22nd, 1931; aged 73 years.

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Wheatcroft, John S., Clayfields, Wentworth, Rotherham. Graduated London, April 1st, 1881; died January 21st, 1931; aged 73 years.

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"Mr. West was the only surviving son of Mr. Henry West, who practised as veterinary surgeon at Newent, and was also at that time landlord of the George Hotel," says the *Gloucester Citizen*.

"Mr. G. H. West was born at the George Hotel, and after his course at the Royal College of Veterinary Surgeons in London, returned to Newent in his 23rd year, and continued his father's practice, which he has carried on for 51 years until his death. He met with a serious accident five years ago, and although he had not been so active since, he was able to continue his duties.

"Mr. West was veterinary surgeon for the County Council for Newent and district. A keen sportsman, he was in earlier life a member of the Veterinary College Rugby XV., and a playing member of the old Newent Cricket Club. He will be greatly missed by many within a large radius of Newent.

"He leaves a widow, who is the younger daughter of the late Mr. Samuel Butt, of Gloucester, four daughters and a son."

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Death of Major C. K. Calder.

It is with regret that we have to announce the death of Major C. K. Calder, which occurred suddenly at Shorncliffe on January 17th, 1931.

The deceased officer graduated in London on June 13th, 1917; he was gazetted to the Regular R.A.V.C. in the rank of Captain on July 10th, 1919, having previously held a temporary commission from January 3rd, 1917; promoted Major on January 22nd, 1927.

Major Calder served in India, Aden, and Persia during the Great War, and was awarded the British War Medal and Victory Medal; he was also awarded the Medal and Clasp for service in the North-West Frontier, India, in 1919.

His death at the early age of 34 years is deeply regretted by all his brother officers.

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The Late Mr. J. H. S. McKie, m.r.c.v.s.

Concerning the death of Mr. J. H. S. McKie, reported in our last issue, the *Lincolnshire Standard* of January 17th states:—

"Spilsbians and his many friends in East Lincolnshire and beyond received with profound regret and with no little shock, the news of the sudden death of a popular townsman and veterinary surgeon, Mr. John Henry Shiel McKie, early last Friday morning at the age of 31 years.

"Mr. McKie had been in good health up to about a week ago when a slight trouble of the heart presented itself. It was thought, however, that a rest would have a beneficial effect, but unfortunately more serious symptoms developed and he passed away suddenly.

"'Shiel,' as he was familiarly known, was a lovable and jovial man and when once his acquaintance was made a lasting friendship was set up. He was ever willing to give a helping hand and the Spilsby district is the poorer by his passing.

"His duties at one period brought him to Lincoln, where he acted as assistant to the late Major Hartley. Coming to Spilsby he soon became popular in the town and district, and farmers who had cause to seek his professional knowledge, and everyone with whom he came into contact, held him in high esteem.

"'Shiel' had a deep interest in the social life of the town and district. He was a member of the Spilsby Lodge of Freemasons and of the Spilsby Conservative Club, and was a foundation member of the Spilsby Group of Toc H. He was particularly interested in 'Soccer' and was a member of the Committee of the Willoughby Football League and the Fermoy Hospital Cup Competition.

"The funeral took place in Glasgow. The remains were conveyed to Scotland by motor hearse.

"Deep sympathy is felt for the family in its great loss."

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Death of Mr. A. T. Waller, m.r.c.v.s.

"Mr. A. T. Waller, of The Nest, Gargrave, who has been in practice as a veterinary surgeon at Skipton for 34 years and had an extensive connection in the Dales, has died at the age of 57," announces the *Bradford Argus* of January 19th.

"A native of Brighouse, he was an old boy of the Bradford Grammar School. For some time he had been in poor health.

"In 1910 Mr. Waller won the Bradford and District Amateur Bowling Merit Competition, and at that time he was captain of the Devonshire Club at Skipton."

Meuse Death Fog.

"The expert inquiry instituted by the authorities at Liége to investigate the deaths during the recent fog in the Meuse Valley has now issued its report," says the *Daily Telegraph* of January 17th.

"The *post-mortem* examinations reveal that the cause of death was irritation of the respiratory tract followed by cardiac failure. The veterinary examinations resulted in similar conclusions being reached in regard to the animals that perished during the fog. The clinical evidence derived from the victims that survived also supports this finding.

"It seems to be established that the fog contained some substance, the nature of which has not yet been established, but which produced effects similar to those caused by sulphuric anhydride.

"M. Dehalu, Professor at the University of Liége, who has studied the meteorological conditions, states that the formation of fog was due to exceptional circumstances, notably cold nights and very slight south-east winds. He declares that the industrial smoke was thus prevented from dissipating itself and accumulated in the density of the fog. This gradual accumulation explains why it was that the majority of the fatalities occurred after the fog had persisted for three days.

"In conclusion, Professor Dehalu says that analogous meteorological circumstances might again happen, but that their highly exceptional nature renders a recurrence unlikely.

"The authorities have appointed two experts to study the smoke of the industrial basin of Liége. It is stated that part of this study will consist of creating artificial fogs in large glass chambers. Various kinds of toxic gases will then be introduced, and an endeavour made to reproduce the effects noted in the Meuse Valley."

Flying Record made on Milk.

According to a report from California, the Hunter Brothers, who made a world's endurance flying record by staying in the air 553 hours, did it on milk. The report goes on:—"From Irene Hunter, sister of John and Kenneth, comes an interesting story about some coffee salesmen who were eager to discover the brand of coffee preferred by the young aviators. They were baffled to learn from Miss Hunter that the containers sent up many times daily to the boys in the plane, were filled with milk and orange juice. Her brothers did not drink coffee or smoke cigarettes, she assured the salesmen. It is no wonder a record was established, for the Hunter family went about the test in a scientific way. Two healthy boys, in a sturdy plane, supplied with food to build steady nerves and physical endurance, and plenty of fuel for the motor, deserved success."

We understand that Messrs. Entwistles, Ltd., the well-known dog food manufacturers of Liverpool, will be exhibiting their specialities at Cruft's Show to be held on Wednesday and Thursday, February 11th and 12th. The firm extend a cordial invitation to all veterinary surgeons attending the Show to visit them at their Stand 52/54.

Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.
All correspondence must bear the name and address of the contributor for publication
The Editor does not hold himself responsible for the opinions of his correspondents.

Specialisation.

To the Editor of the Veterinary Record.

Sir,—In these days, when the idea of altering the curriculum and lengthening the period of study in the veterinary profession, among others, is receiving our attention, the Sylvanus Thompson Lecture delivered before the British Institute of Radiology by A. E. Barclay, M.D., Cambs., the contents of which appear in the *Lancet* of December 13th, 1930, should receive our particular attention.

Dr. Barclay deals with specialisation, which, he says, has become essential because the receptivity of the human mind is limited. It is said, he remarks, "that the specialist is a man who knows more and more about less and less, whereas the general practitioner is one who knows less and less about more and more, and therein lies the danger."

Dr. Barclay further pursues his subject by saying that "nearly all the general practitioners I meet who have been qualified for some years, seem to have forgotten the subjects of anatomy and physiology to an astonishing extent; yet, so far as I can tell, they do not seem to be any worse or better physicians on that account. Surely there is something wrong that this should be the case."

He believes that the trouble lies in the fact that these subjects have become specialists' subjects, taught by specialists in departments that are separated from those in which practice of medicine goes on.

Surely we of the veterinary profession should take this to heart, as our own field is so much more extensive than that of the human medical practitioner, seeing that our anatomy and physiology cover at least three important vertebrates, and I should not like to say how many minor ones.

In view of these facts, should we not relegate the minutiæ of the anatomy of the bones and muscles to the specialist, and so make way for more intensive study of zootechnics, diatetics, radiology, etc.

In the same issue of the *Lancet*, there are other articles calling for the interest of the veterinary surgeon:—tuberculosis in man and animals (a study in resistance)—wounds and maggots—a case of undulant fever (possibly traceable to *B. abortus* in milk)—pasteurisation of milk, etc.

I am,

Yours truly,

William S. Stevens.

c/o Glyn, Mills & Co.,
3, Whitehall Place,
London, S.W.1.

The Editor acknowledges the receipt of the following:—
Communications from Major-General Sir John Moore (London) and Mr. R. H. Smythe (Camborne).
Report of a meeting of the West of Scotland Division, N.V.M.A., from Mr. D. Campbell, Hon. Secretary.

Errata.—In the report of Professor T. G. Browne's remarks on "The Eradication of Bovine Tuberculosis" at the recent meeting of the Veterinary Medical Association of Ireland (*V.R.*, Vol. XI, No. 4, page 97, column 2) the following is stated:—"In this State at the commencement of the campaign the percentage of bovine tuberculosis was less than five, or less than one animal in two hundred." "Five" should read "0·5," also where "five per cent." appears subsequently in the remarks read "0·5 per cent."

Diseases of Animals Acts, 1894 to 1927.

SUMMARY OF RETURNS.

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic Mange.§		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 1 to 15 Jan., 1931	19	20	—	—	13	27	33	55	9
Corresponding period in—									
1930 ...	20	21	—	—	24	32	72	91	30
1929 ...	20	22			16	34	91	46	15
1928 ...	22	24	35	2,541	34	57	65	59	31

Note.—The figures for the current year are approximate only.

Note.—The following diseases were eradicated in Great Britain:—Rinderpest (*Pestis Bovina*) in 1877; Pleuro-Pneumonia (*peripneumonia contagiosa bovum*) in 1898, Sheep Pox (*variola ovium*) in 1850; Rabies in 1922; Epizootic Lymphangitis (*lymphangitis epizootica*) in 1906; and Glanders (including Farcy) (*Malleus*) in 1928. Dourine has never existed in Great Britain.